

SEQUENCE LISTING

<110> Stephen M. Allen
Saverio C. Falco
Catherine J. Thorpe

<120> Genes Encoding Sulfate Assimilation Proteins

<130> BB-1167

<140> 09/720,317

<141> 21-12-2000

<150> 60/092,833

<151> 14-07-1998

<160> 31

<170> Microsoft Office 97

<210> 1

<211> 2279

<212> DNA

<213> Zea mays

<400> 1

gcacgagaga	agaagaagga	agggccatct	tccgaccac	ttgtaggcgc	tgtaagcctg	60
taagcagtca	cctctcagcc	acagacatgg	tgggcatgag	aggcgccctac	ggtggtgctt	120
gcaatgacga	cagcaagagc	cggctgcacg	gaggcaaggc	ggcggagccg	gagatcgctt	180
cgatggcagt	gcacaagggtg	gcgcccgcac	cggcgcgag	cacggcgagc	aagatgaagg	240
tgagggtgaa	ggagaccttc	ttccccgacg	acccgttccg	ggcgttcaag	gggcagccgc	300
cggggacgca	gtggctcatg	gcggtcaggt	acctcttccc	catcctggac	tgggtgccga	360
gctactcctt	gtcgtctctt	aagtccgacc	tcgtcgcggg	cctcaccatt	gccagcctcg	420
ccattcctca	gggcattagc	tacgcgaagc	tggcaagctt	gcctcccata	atcgggctgt	480
attcgagctt	cgtgccgccc	atggtgtacg	cgggtgctgg	gagctcccgt	gacctggcgg	540
tgggcccggg	gtcgtatctg	tcgctgatca	tgggggtccat	gctgcggcag	gccgtgagcc	600
ccactgcgga	gccgacgctg	ttcctgcagc	tggccttcac	ctccaccctg	ttcgcggggc	660
tggtgcaggc	ctccctgggc	atcctcaggc	tcggcttcgt	catcgacttc	ctgtccaagg	720
cgacgctggg	gggggttcatg	gccggcgccc	ccatcatcgt	ggcgtgcag	caactcaagg	780
ggctgctggg	catcgctccac	ttcaccaccg	agatgggcat	cgtcccagtc	atggcctccg	840
tcttccacca	caccagcgag	tggtcgtggc	agacgatcct	catgggcgtc	tgcttccctg	900
tcttctctgt	gtcggcgagg	catgtgagca	tcagatggcc	aaagcttttc	tgggtttcgg	960
cgtgcgcgcc	cctggcatcg	gtcaccatct	cgacgctgct	tgtttttctc	ttcaaagctc	1020
agaaccatgg	catcagcatc	attgggcagc	tcaagtgcgg	cctgaatcgc	ccctcgtggg	1080
acaagctcct	gtttgacacg	gcgtatcttag	gcctcaccat	gaagactggc	cttgtcaccg	1140
gaatcatctc	actgacggaa	ggaatagcgg	ttggtagaac	atttgccctca	ctcaaggact	1200
accagataga	tggaaacaag	gagatgatgg	ccatagggtt	gatgaatggt	gttgggtcct	1260
gcacatcatg	ctacgtaaca	acagggtcgt	tctcccgtc	tgctgtaaac	cacaacgccg	1320
gctgcaagac	tgccatgtcc	aacgtgatca	tggcgtgcac	tgtgatggtc	acgctgctgt	1380
tcctcatgcc	actgttcgtg	tacacaccca	acgttgtcct	cggagcgatc	atcatcgccg	1440
cggatgatcg	cctgatcgat	ttccccgcgg	tgtaccacat	ctggaagatg	gacaagatgg	1500
atcttctggg	gtgcgttttg	gcgtttgccg	gcgtcatctt	catctcagtc	caagaaggcc	1560
ttgcgatagc	ggttggtata	tctatatatta	gggtgttgat	gcagatcaca	aggccgaaga	1620
tgatggttca	agggaaacatc	aaggggactg	atattttacag	agacctgcat	cactacaagg	1680
aggcccaaag	agttttctggg	ttcttgcact	tggccattga	agcaccgata	aacttcgcca	1740
actccaacta	cctgaaatgaa	aggattaaaa	gatggataga	ggaagaatct	tttgaacagg	1800
ataaacatac	tgaactccat	ttcataatct	tggatctgtc	agctgttctc	gcaattgaca	1860
caagtggcat	agcgttcctc	attgacataa	agaaatcaat	agagaaacgt	ggtctggagc	1920
ttgtgcttgt	caatccaact	ggagaagtca	tggagaaaat	acaacgtgca	aacgaggctg	1980
aaaactatct	taggccagat	tgcttgtatc	tgaccactgg	cgaagcaatc	gcttcacttt	2040

ctgcacttgc caagatgaca aaaccctaaa tggattgctg aattgtcatt gtgttcaccc 2100
ctagcactgt taaaagtttt cggtgcagga ttttctgtaa tggggagtg atccaatagg 2160
agtacatcac agctatgttt gtatctagta gaattcttca gatccatgtg atgcaaattc 2220
aatggaaaac aaatatgaca gtacaatagt agatcttaca gaaattttct gctgcaaaa 2279

<210> 2
<211> 688
<212> PRT
<213> Zea mays

<400> 2

Thr Arg Glu Glu Glu Gly Arg Ala Ile Phe Arg Pro Thr Cys Arg Arg
1 5 10 15

Cys Lys Pro Val Ser Ser His Leu Ser Ala Thr Asp Met Val Gly Met
20 25 30

Arg Gly Ala Tyr Gly Gly Ala Cys Asn Asp Asp Ser Lys Ser Arg Leu
35 40 45

His Gly Gly Lys Ala Ala Glu Pro Glu Ile Ala Ser Met Ala Val His
50 55 60

Lys Val Ala Pro Pro Pro Ala Arg Ser Thr Ala Ser Lys Met Lys Val
65 70 75 80

Arg Val Lys Glu Thr Phe Phe Pro Asp Asp Pro Phe Arg Ala Phe Lys
85 90 95

Gly Gln Pro Pro Gly Thr Gln Trp Leu Met Ala Val Arg Tyr Leu Phe
100 105 110

Pro Ile Leu Asp Trp Val Pro Ser Tyr Ser Leu Ser Leu Phe Lys Ser
115 120 125

Asp Leu Val Ala Gly Leu Thr Ile Ala Ser Leu Ala Ile Pro Gln Gly
130 135 140

Ile Ser Tyr Ala Lys Leu Ala Ser Leu Pro Pro Ile Ile Gly Leu Tyr
145 150 155 160

Ser Ser Phe Val Pro Pro Met Val Tyr Ala Val Leu Gly Ser Ser Arg
165 170 175

Asp Leu Ala Val Gly Pro Val Ser Ile Ser Ser Leu Ile Met Gly Ser
180 185 190

Met Leu Arg Gln Ala Val Ser Pro Thr Ala Glu Pro Thr Leu Phe Leu
195 200 205

Gln Leu Ala Phe Thr Ser Thr Leu Phe Ala Gly Leu Val Gln Ala Ser
210 215 220

Leu Gly Ile Leu Arg Leu Gly Phe Val Ile Asp Phe Leu Ser Lys Ala
225 230 235 240

Thr Leu Val Gly Phe Met Ala Gly Ala Ala Ile Ile Val Ala Leu Gln
245 250 255

Gln Leu Lys Gly Leu Leu Gly Ile Val His Phe Thr Thr Glu Met Gly

260							265					270				
Ile	Val	Pro	Val	Met	Ala	Ser	Val	Phe	His	His	Thr	Ser	Glu	Trp	Ser	
		275					280					285				
Trp	Gln	Thr	Ile	Leu	Met	Gly	Val	Cys	Phe	Leu	Val	Phe	Leu	Leu	Ser	
	290					295					300					
Ala	Arg	His	Val	Ser	Ile	Arg	Trp	Pro	Lys	Leu	Phe	Trp	Val	Ser	Ala	
305					310					315					320	
Cys	Ala	Pro	Leu	Ala	Ser	Val	Thr	Ile	Ser	Thr	Leu	Leu	Val	Phe	Leu	
				325					330					335		
Phe	Lys	Ala	Gln	Asn	His	Gly	Ile	Ser	Ile	Ile	Gly	Gln	Leu	Lys	Cys	
			340					345					350			
Gly	Leu	Asn	Arg	Pro	Ser	Trp	Asp	Lys	Leu	Leu	Phe	Asp	Thr	Ala	Tyr	
		355					360					365				
Leu	Gly	Leu	Thr	Met	Lys	Thr	Gly	Leu	Val	Thr	Gly	Ile	Ile	Ser	Leu	
	370					375					380					
Thr	Glu	Gly	Ile	Ala	Val	Gly	Arg	Thr	Phe	Ala	Ser	Leu	Lys	Asp	Tyr	
385					390					395					400	
Gln	Ile	Asp	Gly	Asn	Lys	Glu	Met	Met	Ala	Ile	Gly	Leu	Met	Asn	Val	
				405					410					415		
Val	Gly	Ser	Cys	Thr	Ser	Cys	Tyr	Val	Thr	Thr	Gly	Ala	Phe	Ser	Arg	
			420					425					430			
Ser	Ala	Val	Asn	His	Asn	Ala	Gly	Cys	Lys	Thr	Ala	Met	Ser	Asn	Val	
		435					440					445				
Ile	Met	Ala	Leu	Thr	Val	Met	Val	Thr	Leu	Leu	Phe	Leu	Met	Pro	Leu	
	450					455					460					
Phe	Val	Tyr	Thr	Pro	Asn	Val	Val	Leu	Gly	Ala	Ile	Ile	Ile	Ala	Ala	
465					470					475					480	
Val	Ile	Gly	Leu	Ile	Asp	Phe	Pro	Ala	Val	Tyr	His	Ile	Trp	Lys	Met	
				485					490					495		
Asp	Lys	Met	Asp	Phe	Leu	Val	Cys	Val	Cys	Ala	Phe	Ala	Gly	Val	Ile	
			500					505					510			
Phe	Ile	Ser	Val	Gln	Glu	Gly	Leu	Ala	Ile	Ala	Val	Gly	Ile	Ser	Ile	
		515					520					525				
Phe	Arg	Val	Leu	Met	Gln	Ile	Thr	Arg	Pro	Lys	Met	Met	Val	Gln	Gly	
	530					535					540					
Asn	Ile	Lys	Gly	Thr	Asp	Ile	Tyr	Arg	Asp	Leu	His	His	Tyr	Lys	Glu	
545					550					555					560	
Ala	Gln	Arg	Val	Ser	Gly	Phe	Leu	Ile	Leu	Ala	Ile	Glu	Ala	Pro	Ile	
				565					570					575		
Asn	Phe	Ala	Asn	Ser	Asn	Tyr	Leu	Asn	Glu	Arg	Ile	Lys	Arg	Trp	Ile	

580	585	590
Glu Glu Glu Ser Phe Glu Gln Asp Lys His Thr Glu Leu His Phe Ile 595 600 605		
Ile Leu Asp Leu Ser Ala Val Pro Ala Ile Asp Thr Ser Gly Ile Ala 610 615 620		
Phe Leu Ile Asp Ile Lys Lys Ser Ile Glu Lys Arg Gly Leu Glu Leu 625 630 635 640		
Val Leu Val Asn Pro Thr Gly Glu Val Met Glu Lys Ile Gln Arg Ala 645 650 655		
Asn Glu Ala Glu Asn Tyr Phe Arg Pro Asp Cys Leu Tyr Leu Thr Thr 660 665 670		
Gly Glu Ala Ile Ala Ser Leu Ser Ala Leu Ala Lys Met Thr Lys Pro 675 680 685		

<210> 3
 <211> 1981
 <212> DNA
 <213> Zea mays

<400> 3

gcacgaggag	tccgacctga	tcgccggcat	caccatcgcc	agcctcgcca	tcccgcaggg	60
catcagctac	gccaagctcg	ccaacctgcc	gcccgtgctc	ggactctact	cgagcttcgt	120
gccgccgctg	gtgtacgcgc	tgatggggag	ctccaaggac	ctggcggtgg	ggacggtggc	180
ggtggcgctg	ctgctcatca	gctccatgct	cggcagcgag	gtgtcgccga	cggagaacct	240
cgtgctctac	ctgcacctcg	ccttcaccgc	caccttcttc	gccggcgctc	tccaggcctc	300
gctcggcctc	ctcaggttgg	gcttcacgtg	ggacctgctg	tcgcacgcga	cgatcggtgg	360
gttcatggcc	ggcgcgccga	cggtgggtgt	cctgcagcag	ctgaagggca	tgctgggcct	420
cgtccacttc	accacctcca	ccgacgtcgt	ctccgtcatg	gaatccgtct	tcagccagac	480
acaccagtgg	cggtgggaga	gcgtcctgct	cggctgcggc	ttcctcttct	tcctcctcgt	540
caccgccttc	atcagcaaga	ggcgtcccaa	gctgttctgg	atctccgcgg	cggcgccggt	600
gacgtccgtc	gtgctcggga	gcgttctggt	gtacctcacg	cacgctgaaa	accacggcat	660
cgaagtgate	ggttacctga	agaaaggcct	gaatccaccg	tcggtgacaa	gcctgcaatt	720
ctcaccgccc	tacatgatgc	tcgcgctcaa	gactgggatc	atcaccggcg	tcattgacct	780
cgccgaagga	atcgccgtgg	ggaggagctt	cgccatgttc	aagaactacc	acatgacgga	840
caacaaggag	atgatcgaga	tcgggacgat	gaacgtcctg	ggctcgctca	cgctcggtga	900
cctgaccacg	gggcccttct	cgcgctccgc	cgtgaactac	aacgcggggt	gcaggacggc	960
catgtcgaac	gtggctcatg	cgctggcggt	gatggtcacg	ctgctgttcc	tgacgccgct	1020
gttccactac	acgcgcgtgg	tggtgctgtc	ggcgatcatc	gtctccgcga	tgctgggcct	1080
ggtcgacttc	ggggccgcgc	tgcaacctgt	gcgcgtcgac	aaggctcgact	tctgcgtctg	1140
cgccggcgcg	tacctgggcg	tcgtcttcgg	cagcgtcgag	gtcggcctgg	tcgtcgccgt	1200
cgcgtctctc	ctgctccgcg	tcctgctgtt	cgtcgcccgg	cccaggacca	cgggtgctcg	1260
caacatcccc	ggcaccatgg	tgtaccggag	gatggaccag	tacgcgcgcg	cgcagacggt	1320
gcccggcggt	ctcgtgctgc	gcgtcgacgc	gcccgtctac	ttcgccaacg	ccagctacct	1380
gcgagagagg	atctcgcggt	ggatcgacga	cgaggaggag	cgcaccaaga	gccagggcga	1440
gatgggcgtg	cggtacgttg	tcctcgacat	gggtgccatc	ggtagcatcg	acacgagcgg	1500
gacgagcatg	ctggacgagc	tcaacaagtc	cttgacagag	aggggaatgc	agatcggtgt	1560
ggcgaacctg	ggcagcgaga	tcatgaagaa	gctggacagc	tccaaggtgc	tggagcagat	1620
cggccacgag	tgggtgttcc	cgacggtggg	cgaggcggtg	gcgtcgtgcg	actacgtgct	1680
gcactcgcac	aagccgggaa	tggccaagga	cagcgccgcc	gcccacgaga	gcattggtgt	1740
acgagcaccg	ccacgccaac	cgtatgtgta	gtgtgctccg	gttcgggtct	gacgtaacca	1800
gtcgtcacgc	ggaccgagat	gaattatgta	tacacgtgtc	tcgagtattg	tacacctgca	1860
ccgtcgcggg	aaaaacgaat	tcagagaaga	aaggatccca	cccgggtttt	tttgggtgaa	1920
aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	1980
a						1981

<210> 4
 <211> 579
 <212> PRT
 <213> Zea mays

<400> 4
 His Glu Glu Ser Asp Leu Ile Ala Gly Ile Thr Ile Ala Ser Leu Ala
 1 5 10 15
 Ile Pro Gln Gly Ile Ser Tyr Ala Lys Leu Ala Asn Leu Pro Pro Val
 20 25 30
 Leu Gly Leu Tyr Ser Ser Phe Val Pro Pro Leu Val Tyr Ala Leu Met
 35 40 45
 Gly Ser Ser Lys Asp Leu Ala Val Gly Thr Val Ala Val Ala Ser Leu
 50 55 60
 Leu Ile Ser Ser Met Leu Gly Ser Glu Val Ser Pro Thr Glu Asn Pro
 65 70 75 80
 Val Leu Tyr Leu His Leu Ala Phe Thr Ala Thr Phe Phe Ala Gly Val
 85 90 95
 Phe Gln Ala Ser Leu Gly Leu Leu Arg Leu Gly Phe Ile Val Asp Leu
 100 105 110
 Leu Ser His Ala Thr Ile Val Gly Phe Met Ala Gly Ala Ala Thr Val
 115 120 125
 Val Cys Leu Gln Gln Leu Lys Gly Met Leu Gly Leu Val His Phe Thr
 130 135 140
 Thr Ser Thr Asp Val Val Ser Val Met Glu Ser Val Phe Ser Gln Thr
 145 150 155 160
 His Gln Trp Arg Trp Glu Ser Val Leu Leu Gly Cys Gly Phe Leu Phe
 165 170 175
 Phe Leu Leu Val Thr Arg Phe Ile Ser Lys Arg Arg Pro Lys Leu Phe
 180 185 190
 Trp Ile Ser Ala Ala Ala Pro Leu Thr Ser Val Val Leu Gly Ser Val
 195 200 205
 Leu Val Tyr Leu Thr His Ala Glu Asn His Gly Ile Glu Val Ile Gly
 210 215 220
 Tyr Leu Lys Lys Gly Leu Asn Pro Pro Ser Val Thr Ser Leu Gln Phe
 225 230 235 240
 Ser Pro Pro Tyr Met Met Leu Ala Leu Lys Thr Gly Ile Ile Thr Gly
 245 250 255
 Val Ile Ala Leu Ala Glu Gly Ile Ala Val Gly Arg Ser Phe Ala Met
 260 265 270
 Phe Lys Asn Tyr His Met Thr Asp Asn Lys Glu Met Ile Ala Ile Gly
 275 280 285

Thr	Met	Asn	Val	Leu	Gly	Ser	Leu	Thr	Ser	Cys	Tyr	Leu	Thr	Thr	Gly			
	290					295					300							
Pro	Phe	Ser	Arg	Ser	Ala	Val	Asn	Tyr	Asn	Ala	Gly	Cys	Arg	Thr	Ala			
	305				310					315					320			
Met	Ser	Asn	Val	Val	Met	Ser	Leu	Ala	Val	Met	Val	Thr	Leu	Leu	Phe			
				325					330					335				
Leu	Thr	Pro	Leu	Phe	His	Tyr	Thr	Pro	Leu	Val	Val	Leu	Ser	Ala	Ile			
			340					345					350					
Ile	Val	Ser	Ala	Met	Leu	Gly	Leu	Val	Asp	Phe	Gly	Ala	Ala	Leu	His			
		355					360					365						
Leu	Trp	Arg	Val	Asp	Lys	Val	Asp	Phe	Cys	Val	Cys	Ala	Gly	Ala	Tyr			
	370					375					380							
Leu	Gly	Val	Val	Phe	Gly	Ser	Val	Glu	Val	Gly	Leu	Val	Val	Ala	Val			
	385				390					395					400			
Ala	Val	Ser	Leu	Leu	Arg	Val	Leu	Leu	Phe	Val	Ala	Arg	Pro	Arg	Thr			
				405					410					415				
Thr	Val	Leu	Gly	Asn	Ile	Pro	Gly	Thr	Met	Val	Tyr	Arg	Arg	Met	Asp			
			420					425					430					
Gln	Tyr	Ala	Ala	Ala	Gln	Thr	Val	Pro	Gly	Val	Leu	Val	Leu	Arg	Val			
		435					440					445						
Asp	Ala	Pro	Val	Tyr	Phe	Ala	Asn	Ala	Ser	Tyr	Leu	Arg	Glu	Arg	Ile			
	450					455					460							
Ser	Arg	Trp	Ile	Asp	Asp	Glu	Glu	Glu	Arg	Thr	Lys	Ser	Gln	Gly	Glu			
	465				470					475					480			
Met	Gly	Val	Arg	Tyr	Val	Val	Leu	Asp	Met	Gly	Ala	Ile	Gly	Ser	Ile			
				485					490					495				
Asp	Thr	Ser	Gly	Thr	Ser	Met	Leu	Asp	Glu	Leu	Asn	Lys	Ser	Leu	Asp			
			500					505					510					
Arg	Arg	Gly	Met	Gln	Ile	Val	Leu	Ala	Asn	Pro	Gly	Ser	Glu	Ile	Met			
		515					520					525						
Lys	Lys	Leu	Asp	Ser	Ser	Lys	Val	Leu	Glu	Gln	Ile	Gly	His	Glu	Trp			
	530					535					540							
Val	Phe	Pro	Thr	Val	Gly	Glu	Ala	Val	Ala	Ser	Cys	Asp	Tyr	Val	Leu			
	545				550					555					560			
His	Ser	His	Lys	Pro	Gly	Met	Ala	Lys	Asp	Ser	Ala	Ala	Ala	His	Glu			
				565					570					575				

Ser Met Val

<210> 5
 <211> 1240

<212> DNA
 <213> Zea mays

<400> 5
 gcacgagcct cacggaagct atcgccgttg gccgatcttt cgcctccgta agagggtaca 60
 gactcgacgg caacaaggag atgctggcca tggggttctc caacgttgct gggtctctgt 120
 cctcgtgcta tgtggcaaca ggttcgttct cccgaacggc agtgaacttc agcgcggggg 180
 ccaggtcgac cgtttcaaac atcgtcatgt ccataccagt gttcgtcacc ctggagctgt 240
 tcatgaagct cctctactac acgcccattg cgggtgctgc ctccatcatc ctgtcggctc 300
 ttccgggact gatcgacatc aaggaggcct gcagcatatg gaagatcgac aagatggatt 360
 tcctcacctg cctcgggtgcg tttgttggcg tcctgtttgg gtcgggtggag attgggcttg 420
 cagttgcaact tggcatttcc ttcgcaaaga tcatcataca gtcgcttcgg cctcaggtgg 480
 agatccttgg caggctacaa gggacagata tcttctgcag cgtcaggcag taccctgtag 540
 cctgcctaac tccgactgta ctgcctatac gcgtcgacac atccttctc tgcttcatca 600
 acgccacttc cgtcaaagaa aggatcacag agtgggtttg ggaaggagtg gagacctcaa 660
 atggaaaagc gagggagagg atacaagcag ttgtccttga tatgtcaagt gtggtaaaca 720
 tcgacacttc aggactcact gcactggaag aaatacacaa ggagttgggt tctcttgggt 780
 tacagatggc tatagccagt ccgggatgga aggcagttca gaagatgaaa gtgtcacagg 840
 tgggtggacag ggtaggacag gactggatct tcatgacagt aggtgaagcg gtggaggcct 900
 gtctagctgc tcataagggc acagctctcg catgttgagt atgcgttaat tactactatt 960
 agtactccta aggataatcc cataagcgat gcggttattt gcatactatg aagggtgttac 1020
 tggaaatgct tacgaaacag aaatgcatgg tttgcacatg atggaggcaa aatacctatg 1080
 gtatgacttg actggagtgg tcgtggcgag aaacaaacct gctctgggaa ggacattcct 1140
 tgagctccac aaaaacatgt atggtgatat cttgatgatg tgtaactgta cttagtaagt 1200
 aaacaagtct ttttgttaaa aaaaaaaaaa aaaaaaaaaa 1240

<210> 6
 <211> 311
 <212> PRT
 <213> Zea mays

<400> 6
 Thr Ser Leu Thr Glu Ala Ile Ala Val Gly Arg Ser Phe Ala Ser Val
 1 5 10 15
 Arg Gly Tyr Arg Leu Asp Gly Asn Lys Glu Met Leu Ala Met Gly Phe
 20 25 30
 Ser Asn Val Ala Gly Ser Leu Ser Ser Cys Tyr Val Ala Thr Gly Ser
 35 40 45
 Phe Ser Arg Thr Ala Val Asn Phe Ser Ala Gly Ala Arg Ser Thr Val
 50 55 60
 Ser Asn Ile Val Met Ser Ile Thr Val Phe Val Thr Leu Glu Leu Phe
 65 70 75 80
 Met Lys Leu Leu Tyr Tyr Thr Pro Met Ala Val Leu Ala Ser Ile Ile
 85 90 95
 Leu Ser Ala Leu Pro Gly Leu Ile Asp Ile Lys Glu Ala Cys Ser Ile
 100 105 110
 Trp Lys Ile Asp Lys Met Asp Phe Leu Thr Cys Leu Gly Ala Phe Val
 115 120 125
 Gly Val Leu Phe Gly Ser Val Glu Ile Gly Leu Ala Val Ala Leu Gly
 130 135 140

Ile Ser Phe Ala Lys Ile Ile Ile Gln Ser Leu Arg Pro Gln Val Glu
 145 150 155 160
 Ile Leu Gly Arg Leu Gln Gly Thr Asp Ile Phe Cys Ser Val Arg Gln
 165 170 175
 Tyr Pro Val Ala Cys Leu Thr Pro Thr Val Leu Pro Ile Arg Val Asp
 180 185 190
 Thr Ser Phe Leu Cys Phe Ile Asn Ala Thr Ser Val Lys Glu Arg Ile
 195 200 205
 Thr Glu Trp Val Trp Glu Gly Val Glu Thr Ser Asn Gly Lys Ala Arg
 210 215 220
 Glu Arg Ile Gln Ala Val Val Leu Asp Met Ser Ser Val Val Asn Ile
 225 230 235 240
 Asp Thr Ser Gly Leu Thr Ala Leu Glu Glu Ile His Lys Glu Leu Val
 245 250 255
 Ser Leu Gly Leu Gln Met Ala Ile Ala Ser Pro Gly Trp Lys Ala Val
 260 265 270
 Gln Lys Met Lys Val Ser Gln Val Val Asp Arg Val Gly Gln Asp Trp
 275 280 285
 Ile Phe Met Thr Val Gly Glu Ala Val Glu Ala Cys Leu Ala Ala His
 290 295 300
 Lys Gly Thr Ala Leu Ala Cys
 305 310

<210> 7
 <211> 780
 <212> DNA
 <213> Helianthus tuberosus

<400> 7
 ttcggcacga gctcgtgccg cgattcacct ctggacacta gacaaattcg actttgttgt 60
 atgcatgagt gcatactttg gtgttgtctt tgggagtgtt gaaattggat tagttatcgc 120
 ggtcgcattg tcgttgctta gggactcctt atttgtctcg aggccaagaa catcgacgct 180
 aggtctcata cccgattcca ctatttatag aagtatgat caataccaaa atgcgaaaag 240
 cgttccagga atcttgatac ttcaaatcga agcacctatt tactttgcta actctagcta 300
 cttgagggaa aggattgtga gatgggttga tgaagaggaa gatagggtga agtctttaa 360
 ggagaatgac ttgcaatatg tcattcttgc attgagtgcg gttggaaata ttgatacaag 420
 tgggataaca atgcttgagag aagttaaaaa ggttatggaa agaagagggc taaagtgtgt 480
 tttagcgaat ccgggcggag aggtaataaa gaagatgaac aaagcgaagt tgatagaggt 540
 gatcgggcaa gaatggatat atctaacagt gggagaagcg gttggagcgt gcaactttat 600
 gcttcatact tacaagaacg ccgaaaagcc aacttctgga tcagaatcag gaaaagagag 660
 tcgaaacgac aataatgtct agttggatgt tgttatttga tcatttgaca gcatttttcg 720
 tcgaaggcgt attcttaatg ataaataatt tgttatattga ttaaaaaaaaa aaaaaaaaaa 780

<210> 8
 <211> 226
 <212> PRT
 <213> Helianthus tuberosus

<400> 8
 Ser Ala Arg Ala Arg Ala Ala Ile His Leu Trp Thr Leu Asp Lys Phe
 1 5 10 15
 Asp Phe Val Val Cys Met Ser Ala Tyr Phe Gly Val Val Phe Gly Ser
 20 25 30
 Val Glu Ile Gly Leu Val Ile Ala Val Ala Leu Ser Leu Leu Arg Val
 35 40 45
 Leu Leu Phe Val Ser Arg Pro Arg Thr Ser Thr Leu Gly Leu Ile Pro
 50 55 60
 Asp Ser Thr Ile Tyr Arg Ser Met Asp Gln Tyr Gln Asn Ala Lys Ser
 65 70 75 80
 Val Pro Gly Ile Leu Ile Leu Gln Ile Glu Ala Pro Ile Tyr Phe Ala
 85 90 95
 Asn Ser Ser Tyr Leu Arg Glu Arg Ile Val Arg Trp Val Asp Glu Glu
 100 105 110
 Glu Asp Arg Leu Lys Ser Leu Lys Glu Asn Asp Leu Gln Tyr Val Ile
 115 120 125
 Leu Ala Leu Ser Ala Val Gly Asn Ile Asp Thr Ser Gly Ile Thr Met
 130 135 140
 Leu Gly Glu Val Lys Lys Val Met Glu Arg Arg Gly Leu Lys Leu Val
 145 150 155 160
 Leu Ala Asn Pro Gly Gly Glu Val Ile Lys Lys Met Asn Lys Ala Lys
 165 170 175
 Leu Ile Glu Val Ile Gly Gln Glu Trp Ile Tyr Leu Thr Val Gly Glu
 180 185 190
 Ala Val Gly Ala Cys Asn Phe Met Leu His Thr Tyr Lys Asn Ala Glu
 195 200 205
 Lys Pro Thr Ser Gly Ser Glu Ser Gly Lys Glu Ser Arg Asn Asp Asn
 210 215 220
 Asn Val
 225

<210> 9
 <211> 484
 <212> DNA
 <213> *Oryza sativa*

<220>
 <221> unsure
 <222> (398)
 <223> n = A, C, G or T

 <220>
 <221> unsure
 <222> (483)
 <223> n = A, C, G or T

```

<400> 9
cttacaggca tcaagagctt tacaaagaaa accgatataa tttccgtgat gagctgaagt 60
ccaaacagag cgcataacag gtggaattgg caaactattg tgattggcat aactttcctt 120
gcatttcctt tgcttgccaa gtacattgga aagaagaata ggaagttctt ctgggtgcca 180
gctattgctc ctataacttc agttattttg gcaacccttt ttgtgttcat tactcgtgct 240
gacaagcaag gtgttcagat tgtaaacac atcaaaaagg gcataaaccc atcatcagtc 300
cacaaaattt atttacttgg tccatttgtt gcaaaagggt tcaagatcgg tgtcatttcc 360
gccatgatcg gtttaacgga agctgtggca attggganga cgtttgctgc tctgaaggac 420
tatcaattag attggaacaa ggagatggaa cacttggaac tatgaacata caaggtcaat 480
gana 484

```

```

<210> 10
<211> 147
<212> PRT
<213> Oryza sativa

```

```

<220>
<221> UNSURE
<222> (17)
<223> Xaa = any amino acid

```

```

<220>
<221> UNSURE
<222> (131)
<223> Xaa = any amino acid

```

```

<400> 10
Gly Ile Lys Ser Phe Thr Lys Lys Thr Asp Ile Ile Ser Val Met Ser
 1          5          10          15

Xaa Ser Pro Asn Arg Ala His Asn Arg Trp Asn Trp Gln Thr Ile Val
      20          25          30

Ile Gly Ile Thr Phe Leu Ala Phe Leu Leu Leu Ala Lys Tyr Ile Gly
      35          40          45

Lys Lys Asn Arg Lys Phe Phe Trp Val Pro Ala Ile Ala Pro Ile Thr
      50          55          60

Ser Val Ile Leu Ala Thr Leu Phe Val Phe Ile Thr Arg Ala Asp Lys
      65          70          75          80

Gln Gly Val Gln Ile Val Asn His Ile Lys Lys Gly Ile Asn Pro Ser
      85          90          95

Ser Val His Lys Ile Tyr Phe Thr Gly Pro Phe Val Ala Lys Gly Phe
      100          105          110

Lys Ile Gly Val Ile Ser Ala Met Ile Gly Leu Thr Glu Ala Val Ala
      115          120          125

Ile Gly Xaa Thr Phe Ala Ala Leu Lys Asp Tyr Gln Leu Asp Trp Asn
      130          135          140

Lys Glu Met
145

```

```

<210> 11
<211> 510

```

<212> DNA

<213> Oryza sativa

<400> 11

```
gcacgagatc actcgcagtt aagattagtt aatccaagct ctagctcgat cgcgcggtcg 60
ccggagctga ggtagacgaa ggagtgcgac gagctaagat gggtagtgga agcgcgggca 120
acggcgggcg aggaggggag gggcgggcga gggtgccgat gccggcgggc aagccgttcc 180
tggagacgct ggggggggaa atgaaggaga cattcctgcc ggacgacccg ttcagggtgg 240
tgcggcgggg gcgcgggtgc gggcgggcgc cggcggcggc gctccggtac gtgttcccgt 300
tcatggagtg ggcgccgtcg tacaccctcg gcaccctcaa gtccgacctc atcgccggca 360
caccattgcc agcctcagca tcccgcaagg gatcagctag ccaagctcgc aactccctcg 420
cgtcctcggc tcaaatcaac ttcgtgcccc gcggtgtacc gatgagggga ctcgagggac 480
tgcggttaga cgtggcggtg cgtcctgcga 510
```

<210> 12

<211> 98

<212> PRT

<213> Oryza sativa

<400> 12

```
Met Gly Ser Gly Ser Ala Ala Asn Gly Gly Gly Gly Gly Ala Gly Ala
 1             5             10             15

Ala Arg Val Pro Met Pro Ala Ala Lys Pro Phe Leu Glu Thr Leu Gly
      20             25             30

Gly Asn Met Lys Glu Thr Phe Leu Pro Asp Asp Pro Phe Arg Val Val
      35             40             45

Arg Arg Glu Arg Gly Cys Gly Arg Arg Ala Ala Ala Ala Leu Arg Tyr
      50             55             60

Val Phe Pro Phe Met Glu Trp Ala Pro Ser Tyr Thr Leu Gly Thr Leu
      65             70             75             80

Lys Ser Asp Leu Ile Ala Gly Thr Pro Leu Pro Ala Ser Ala Ser Arg
      85             90             95

Lys Gly
```

<210> 13

<211> 493

<212> DNA

<213> Oryza sativa

<400> 13

```
acgacatgac ccgtggcacc cgggcaactt cctcatcgga tgctccttcc tcatattcat 60
cctcaccaca cgggttcatcg ggaggaggtg caagaagctg ttctggctgt cagcgatctc 120
gcctctgctg tcgggtcatcc tgtccaccgc tgcggtctac gcgacaaggg ctgacaggca 180
cggcgtcaag atcatccaga aggtgcacgc gggcctaaac ccaagctccg tgggaagcaga 240
tacacctcaa cgggcccgcac acaacggagt gcgcccaaga tcgccgtcat ctgcgcatca 300
tcgccctcac ggaagctatc gccgttgccc gatctttcgc ctccgtaaga gggtagacag 360
tcgacggcaa caaggagatg ctggccatgg ggttctccaa cgttgctggt tctctgtcct 420
cgtgctatgt ggcaacaggt tcgttctccc gaacggcagt gaacttcagc ggcggggggc 480
agtcgaccgt ttc 493
```

<210> 14

<211> 159

<212> PRT

<213> Oryza sativa

<220>

<221> UNSURE

<222> (74)

<223> Xaa = any amino acid

<400> 14

Trp His Pro Gly Asn Phe Leu Ile Gly Cys Ser Phe Leu Ile Phe Ile
1 5 10 15

Leu Thr Thr Arg Phe Ile Gly Arg Arg Tyr Lys Lys Leu Phe Trp Leu
20 25 30

Ser Ala Ile Ser Pro Leu Leu Ser Val Ile Leu Ser Thr Ala Ala Val
35 40 45

Tyr Ala Thr Arg Ala Asp Arg His Gly Val Lys Ile Ile Gln Lys Val
50 55 60

His Ala Gly Leu Asn Pro Ser Ser Val Xaa Gln Ile His Leu Asn Gly
65 70 75 80

Pro His Thr Thr Glu Cys Ala Gln Asp Arg Arg His Leu Arg Ile Ile
85 90 95

Ala Leu Thr Glu Ala Ile Ala Val Gly Arg Ser Phe Ala Ser Val Arg
100 105 110

Gly Tyr Arg Leu Asp Gly Asn Lys Glu Met Leu Ala Met Gly Phe Ser
115 120 125

Asn Val Ala Gly Ser Leu Ser Ser Cys Tyr Val Ala Thr Gly Ser Phe
130 135 140

Ser Arg Thr Ala Val Asn Phe Ser Gly Gly Gly Gln Ser Thr Val
145 150 155

<210> 15

<211> 2067

<212> DNA

<213> Glycine max

<400> 15

gcacgagcca	caccagacca	cactccacaa	acttaggcac	agagtctccg	aaatcttctt	60
cccagatgac	cctctccacc	gtttcaagaa	ccaaactcgc	tttaaaaagt	tcctcctcgc	120
acttcagtat	ctcttcccca	ttttcgactg	ggccccaac	tacaatctta	cccttctccg	180
ctctgacctc	atctctggcc	tcaccattgc	cagcctcgcc	attcctcagg	gaatcagtta	240
tgccaagctt	gccaaacttg	cacctattct	tggattatat	tcgagttttg	ttccccatt	300
gatatactcg	ctgcttggaa	gttctagaca	tcttggtggt	ggacctgttt	ccattgcgtc	360
tttgggtcatg	ggatcaatgt	taagtgataa	aatttcttac	actcaagaac	ctattctcta	420
tctgggattg	gctttcaccg	ccactttctt	tgctggtgta	ttccaagctt	ctctgggtat	480
attaaggcta	ggcttcgtaa	ttgattttct	gtcgaaggca	acgctgggtg	gattcacagg	540
cggtgctgcc	attattgtgt	cactgcagca	gctgaaagg	ttacttgtaa	tagtgcactt	600
taccagcaag	atgcaaataa	ttccagtaac	gatctctgtt	ttcaagcaaa	gacacgagt	660
gtcatggcaa	accattcttt	tgggattcgg	cttctgtgtc	ttcttgctga	caacaaggca	720
cattagtttg	aggaaaccaa	aactattctg	ggtttcagca	gctgccccat	tgacatcagt	780
tattctgtca	accattttag	tctttcttct	gagaaataag	actcatcaaa	tttcagttat	840
tgggcactta	caaaggagg	ttaatccacc	atcagcaaac	atgttatact	tcaatgggtcc	900
ttacttgggt	cttgctatca	aaactggcat	catcacagg	atcttatctc	tcactgaagg	960

```

aattgcagta gggagaacat ttgcttcact taagaactac caggtggatg gaaacaaaga 1020
aatgatggcc attgggtctaa tgaacatagc tggctcgtgt tcttcatggt atgttacaac 1080
gggatccttt tctcgatcgg ctgttaacta taatgctgga gcacagacaa cagtttcaaa 1140
tataatcatg gctgcagctg ttctagtac acttctgttt ctcatgcctc ttttctacta 1200
tacaccaaat gttgtcttag cggccattat catcactgct gtgattggtc taatagatta 1260
tcaatctgca tataaattgt ggaagggtga caaacttgat ttcttggcct gtttgtgctc 1320
cttttttggg gttctgttca tttcagtgcc ttttaggtctt ggtatagcgg ttatcatatc 1380
agtcctcaag atcctgcttc atgtcactcg accaaacact ttgggttttg ggaatatacc 1440
aggaacacaa atattccaca acataaacca atacaaaaaa gctttaagag ttccttcatt 1500
tctcattttg gctgttgagt ctccaatcta ttttgctaac tcaacttata ttcaagaaag 1560
gatactgaga tgggttcgag aagaggaaga gcatataaaa gctaataatg gagctccatt 1620
gaagtgcata attttagaca tgacagctgt cacagccaca gacacaagtg ggcttgacac 1680
tttatgtgaa cttagaaaga tgctggagaa gagatcactt gagtttgtgc tggcaaattc 1740
tgttggaaat gtgatggaaa aattgcataa gtcaaacatt ttggattctt ttggattaaa 1800
aggagtctat ctcacagtgg gagaagctgt gactgacatt tcatcaatct ggaaagctca 1860
gccttgattt cccatcaatg ttgttcaagg acttatatat ggggataaac tctctaacct 1920
tatatttttg cctgcgatga atacttttgt ttaaattccg gagagtctaa tttctgttag 1980
tagaaacctt caaaacaata ttaccccgta aaaatgaaaa aggagtgcct tcaaaatcaa 2040
aaaaaaaaaa aaaaaaaaaa aaaaaaa 2067

```

```

<210> 16
<211> 621
<212> PRT
<213> Glycine max

```

```

<400> 16
His Glu Pro His Gln Thr Thr Leu His Lys Leu Arg His Arg Val Ser
 1              5              10              15

Glu Ile Phe Phe Pro Asp Asp Pro Leu His Arg Phe Lys Asn Gln Thr
      20              25              30

Arg Phe Lys Lys Phe Leu Leu Ala Leu Gln Tyr Leu Phe Pro Ile Phe
      35              40              45

Asp Trp Ala Pro Asn Tyr Asn Leu Thr Leu Leu Arg Ser Asp Leu Ile
      50              55              60

Ser Gly Leu Thr Ile Ala Ser Leu Ala Ile Pro Gln Gly Ile Ser Tyr
      65              70              75              80

Ala Lys Leu Ala Asn Leu Pro Pro Ile Leu Gly Leu Tyr Ser Ser Phe
      85              90              95

Val Pro Pro Leu Ile Tyr Ser Leu Leu Gly Ser Ser Arg His Leu Gly
      100             105             110

Val Gly Pro Val Ser Ile Ala Ser Leu Val Met Gly Ser Met Leu Ser
      115             120             125

Asp Lys Ile Ser Tyr Thr Gln Glu Pro Ile Leu Tyr Leu Gly Leu Ala
      130             135             140

Phe Thr Ala Thr Phe Phe Ala Gly Val Phe Gln Ala Ser Leu Gly Ile
      145             150             155             160

Leu Arg Leu Gly Phe Val Ile Asp Phe Leu Ser Lys Ala Thr Leu Val
      165             170             175

Gly Phe Thr Gly Gly Ala Ala Ile Ile Val Ser Leu Gln Gln Leu Lys

```

180					185					190					
Gly	Leu	Leu	Gly	Ile	Val	His	Phe	Thr	Ser	Lys	Met	Gln	Ile	Ile	Pro
	195						200					205			
Val	Thr	Ile	Ser	Val	Phe	Lys	Gln	Arg	His	Glu	Trp	Ser	Trp	Gln	Thr
	210					215					220				
Ile	Leu	Leu	Gly	Phe	Gly	Phe	Leu	Val	Phe	Leu	Leu	Thr	Thr	Arg	His
225					230					235					240
Ile	Ser	Leu	Arg	Lys	Pro	Lys	Leu	Phe	Trp	Val	Ser	Ala	Ala	Ala	Pro
				245					250					255	
Leu	Thr	Ser	Val	Ile	Leu	Ser	Thr	Ile	Leu	Val	Phe	Leu	Leu	Arg	Asn
			260					265					270		
Lys	Thr	His	Gln	Ile	Ser	Val	Ile	Gly	His	Leu	Pro	Lys	Gly	Val	Asn
		275					280					285			
Pro	Pro	Ser	Ala	Asn	Met	Leu	Tyr	Phe	Asn	Gly	Pro	Tyr	Leu	Gly	Leu
	290					295					300				
Ala	Ile	Lys	Thr	Gly	Ile	Ile	Thr	Gly	Ile	Leu	Ser	Leu	Thr	Glu	Gly
305					310					315					320
Ile	Ala	Val	Gly	Arg	Thr	Phe	Ala	Ser	Leu	Lys	Asn	Tyr	Gln	Val	Asp
				325					330					335	
Gly	Asn	Lys	Glu	Met	Met	Ala	Ile	Gly	Leu	Met	Asn	Ile	Ala	Gly	Ser
			340					345					350		
Cys	Ser	Ser	Cys	Tyr	Val	Thr	Thr	Gly	Ser	Phe	Ser	Arg	Ser	Ala	Val
		355					360					365			
Asn	Tyr	Asn	Ala	Gly	Ala	Gln	Thr	Thr	Val	Ser	Asn	Ile	Ile	Met	Ala
	370					375					380				
Ala	Ala	Val	Leu	Val	Thr	Leu	Leu	Phe	Leu	Met	Pro	Leu	Phe	Tyr	Tyr
385					390					395					400
Thr	Pro	Asn	Val	Val	Leu	Ala	Ala	Ile	Ile	Ile	Thr	Ala	Val	Ile	Gly
				405					410					415	
Leu	Ile	Asp	Tyr	Gln	Ser	Ala	Tyr	Lys	Leu	Trp	Lys	Val	Asp	Lys	Leu
			420					425					430		
Asp	Phe	Leu	Ala	Cys	Leu	Cys	Ser	Phe	Phe	Gly	Val	Leu	Phe	Ile	Ser
		435					440					445			
Val	Pro	Leu	Gly	Leu	Gly	Ile	Ala	Val	Ile	Ile	Ser	Val	Leu	Lys	Ile
	450					455					460				
Leu	Leu	His	Val	Thr	Arg	Pro	Asn	Thr	Leu	Val	Leu	Gly	Asn	Ile	Pro
465					470					475					480
Gly	Thr	Gln	Ile	Phe	His	Asn	Ile	Asn	Gln	Tyr	Lys	Lys	Ala	Leu	Arg
				485					490					495	
Val	Pro	Ser	Phe	Leu	Ile	Leu	Ala	Val	Glu	Ser	Pro	Ile	Tyr	Phe	Ala

500	505	510
Asn Ser Thr Tyr Leu Gln Glu Arg Ile Leu Arg Trp Val Arg Glu Glu		
515	520	525
Glu Glu His Ile Lys Ala Asn Asn Gly Ala Pro Leu Lys Cys Ile Ile		
530	535	540
Leu Asp Met Thr Ala Val Thr Ala Thr Asp Thr Ser Gly Leu Asp Thr		
545	550	555
Leu Cys Glu Leu Arg Lys Met Leu Glu Lys Arg Ser Leu Glu Phe Val		
565	570	575
Leu Ala Asn Pro Val Gly Asn Val Met Glu Lys Leu His Lys Ser Asn		
580	585	590
Ile Leu Asp Ser Phe Gly Leu Lys Gly Val Tyr Leu Thr Val Gly Glu		
595	600	605
Ala Val Thr Asp Ile Ser Ser Ile Trp Lys Ala Gln Pro		
610	615	620

<210> 17
 <211> 2449
 <212> DNA
 <213> Glycine max

<400> 17

gcacgagcta	gctcgcacat	taagttatat	aacacatatt	tgcttgctta	gaaatactat	60
tattgaagat	atggggagtg	tagattatga	gtaccctttg	ggcatgaaca	actttgagag	120
agtgcaccaa	gtcagaggttc	caccgccaca	gccgtttttc	aagtctctaa	agtactcttt	180
gaaggagact	ttcttccttg	atgacccttt	gaggcagttc	aagaacaagc	cagcttccaa	240
gaagttcatg	cttggccttc	agttcttctt	ccccattttc	gaatgggctc	ccaaatacac	300
ctttcagttc	ttgaaagctg	acctcatagc	tggcatcacc	atcgctagct	tggccattcc	360
tcagggcatc	agttatgcca	agctcgccaa	cctccctcca	attcttggac	tatattcgag	420
ctttatacca	ccattgattt	atgcatgat	gggtagctcg	agggatttgg	cagtggggac	480
tgtggcggtt	ggatcgcttc	tgatgggttc	gatgttgagt	aatgccgttg	atcccaatga	540
agacccaaag	ctttacctcc	acctggcttt	cacagctaca	ttatttgctg	gtgtttttca	600
ggctgccttg	ggtctgttta	ggttgggggt	gatcgtggat	tttctgtcac	atgcaaccat	660
aatagggttc	atgggaggag	cagccacggt	ggtgtgtctg	cagcaactaa	aatcgattct	720
tggccttgag	catttcaccc	atggagctga	tatcatatca	gtgatgcgct	ctgttttcac	780
ccaaactcat	gagtggagggt	gggaaaagtc	tgtgttagga	tgtgtcttca	ttttcttcct	840
ccttagcaca	agatacttca	gcaaaaaacg	accaagggtt	ttttgggtgt	cagcaatggc	900
gccattgacg	tcggttatat	tgggaagtct	cttggtttat	ttcactcacg	ccgagaagca	960
cggtgttgaa	gtgataggag	aactgaagaa	gggtttgaat	ccaccatcac	tcacaaatct	1020
ggtatttgtg	tcgccttaca	tgactacagc	tgtcaaaact	ggcattgtcg	ttggcatcat	1080
atcacttgcg	gaaggaatag	cagtaggaag	aagctttgca	atgtataaaa	attacaatat	1140
tgatggcaac	aaagagatga	tagctatttg	gaccatgaac	gtagttaggt	ctttcacctc	1200
ttgtacctc	acaacaggac	cattttcgcg	ttcggtgtg	aactataacg	ctggatgcaa	1260
gacagcagct	tccaacatta	taatgtcact	tgcagtaatg	ttgacattgt	tattcctgac	1320
acccttggtc	cattacactc	ccctggtggt	gctatcagct	attatcgat	ctgcaatgct	1380
tggactcata	gattatgaag	cagccatcca	tctattttaag	gttgacaaat	ttgactttgt	1440
ggtgtgcatg	agtgcataca	ttggcgtggt	ctttggcagt	gttgaaattg	gcttagtcat	1500
agctattgta	atatctgtac	ttcggttact	tctatttatt	gcaaggccaa	ggacattcgt	1560
tttgggcaac	attccaaatt	ctgtgatata	ccgaaatggt	gagcactatc	aaaatgcaaa	1620
acatgttcct	ggaatgctaa	ttctagagat	tgatgcacca	atttactttg	ccaatgccag	1680
ctatttaaga	gaaaggatca	caaggtggat	tgatgaagaa	gaagaaagaa	ttaaagctac	1740
aggggagact	agtttgcagt	atgttataat	tgatatgagt	gctgttggaa	acattgatac	1800
aagtggaata	agtatgcttg	aagaggtgaa	gaagattaca	gagagaagag	agctacagct	1860

```

tgttttgggc aatcctgtaa gtgaagtgat gaagaaactg aacaaatcga agttccaaaa 1920
tcatttaggg aagaaatgga tctatctgac tggtgaagag gccgttggag catgcaactt 1980
caatctacgt gcaagcaaaa cgaaccctaaa gaaagatgaa acagaggggtt ggaacaatgt 2040
gtgactgagt catatgccaa agagtattct aaataactca aaaagcttat tcgttttcgt 2100
cttagtaatg ttaccactac aatgtgtggc atgagaattt ctgaatcacg ccgaagaagt 2160
tttaaaggca taggaaaatg aaagatgcaa gggctcttcta atttctcaac tctgcatcct 2220
tagttagaag aaaatctcct atgtataggc tggtgaaata atctttacgt atcatgcttg 2280
ataatatatt caagagaaat gctagcaaca cactctcaga cacactcttt tgaacacatg 2340
taaagaggta aagaagtgtg ttgctagcac tcctccatat tcaattgtaa agtaattgcc 2400
atgagaattt aaaaatcctt tggaaaaaaa aaaaaaaaaa aaaaaaaaaa 2449

```

```

<210> 18
<211> 680
<212> PRT
<213> Glycine max

```

```

<400> 18
His Glu Leu Ala Arg Thr Leu Ser Tyr Ile Thr His Ile Cys Leu Leu
 1          5          10          15

Arg Asn Thr Ile Ile Glu Asp Met Gly Ser Val Asp Tyr Glu Tyr Pro
          20          25          30

Leu Gly Met Asn Asn Phe Glu Arg Val His Gln Val Glu Val Pro Pro
          35          40          45

Pro Gln Pro Phe Phe Lys Ser Leu Lys Tyr Ser Leu Lys Glu Thr Phe
          50          55          60

Phe Pro Asp Asp Pro Leu Arg Gln Phe Lys Asn Lys Pro Ala Ser Lys
          65          70          75          80

Lys Phe Met Leu Gly Leu Gln Phe Phe Phe Pro Ile Phe Glu Trp Ala
          85          90          95

Pro Lys Tyr Thr Phe Gln Phe Leu Lys Ala Asp Leu Ile Ala Gly Ile
          100          105          110

Thr Ile Ala Ser Leu Ala Ile Pro Gln Gly Ile Ser Tyr Ala Lys Leu
          115          120          125

Ala Asn Leu Pro Pro Ile Leu Gly Leu Tyr Ser Ser Phe Ile Pro Pro
          130          135          140

Leu Ile Tyr Ala Met Met Gly Ser Ser Arg Asp Leu Ala Val Gly Thr
          145          150          155          160

Val Ala Val Gly Ser Leu Leu Met Gly Ser Met Leu Ser Asn Ala Val
          165          170          175

Asp Pro Asn Glu Asp Pro Lys Leu Tyr Leu His Leu Ala Phe Thr Ala
          180          185          190

Thr Leu Phe Ala Gly Val Phe Gln Ala Ala Leu Gly Leu Phe Arg Leu
          195          200          205

Gly Leu Ile Val Asp Phe Leu Ser His Ala Thr Ile Ile Gly Phe Met
          210          215          220

Gly Gly Ala Ala Thr Val Val Cys Leu Gln Gln Leu Lys Ser Ile Leu

```


225					230					235					240
Gly	Leu	Glu	His	Phe	Thr	His	Gly	Ala	Asp	Ile	Ile	Ser	Val	Met	Arg
				245					250					255	
Ser	Val	Phe	Thr	Gln	Thr	His	Glu	Trp	Arg	Trp	Glu	Ser	Ala	Val	Leu
			260					265					270		
Gly	Cys	Val	Phe	Ile	Phe	Phe	Leu	Leu	Ser	Thr	Arg	Tyr	Phe	Ser	Lys
		275					280					285			
Lys	Arg	Pro	Arg	Phe	Phe	Trp	Val	Ser	Ala	Met	Ala	Pro	Leu	Thr	Ser
	290					295					300				
Val	Ile	Leu	Gly	Ser	Leu	Leu	Val	Tyr	Phe	Thr	His	Ala	Glu	Lys	His
305					310					315					320
Gly	Val	Glu	Val	Ile	Gly	Glu	Leu	Lys	Lys	Gly	Leu	Asn	Pro	Pro	Ser
				325					330					335	
Leu	Thr	Asn	Leu	Val	Phe	Val	Ser	Pro	Tyr	Met	Thr	Thr	Ala	Val	Lys
			340					345					350		
Thr	Gly	Ile	Val	Val	Gly	Ile	Ile	Ser	Leu	Ala	Glu	Gly	Ile	Ala	Val
		355					360					365			
Gly	Arg	Ser	Phe	Ala	Met	Tyr	Lys	Asn	Tyr	Asn	Ile	Asp	Gly	Asn	Lys
	370					375					380				
Glu	Met	Ile	Ala	Ile	Gly	Thr	Met	Asn	Val	Val	Gly	Ser	Phe	Thr	Ser
385					390					395					400
Cys	Tyr	Leu	Thr	Thr	Gly	Pro	Phe	Ser	Arg	Ser	Ala	Val	Asn	Tyr	Asn
				405					410					415	
Ala	Gly	Cys	Lys	Thr	Ala	Ala	Ser	Asn	Ile	Ile	Met	Ser	Leu	Ala	Val
			420					425					430		
Met	Leu	Thr	Leu	Leu	Phe	Leu	Thr	Pro	Leu	Phe	His	Tyr	Thr	Pro	Leu
		435					440					445			
Val	Val	Leu	Ser	Ala	Ile	Ile	Val	Ser	Ala	Met	Leu	Gly	Leu	Ile	Asp
	450					455					460				
Tyr	Glu	Ala	Ala	Ile	His	Leu	Phe	Lys	Val	Asp	Lys	Phe	Asp	Phe	Val
465					470					475					480
Val	Cys	Met	Ser	Ala	Tyr	Ile	Gly	Val	Val	Phe	Gly	Ser	Val	Glu	Ile
				485					490					495	
Gly	Leu	Val	Ile	Ala	Ile	Val	Ile	Ser	Val	Leu	Arg	Val	Leu	Leu	Phe
			500					505					510		
Ile	Ala	Arg	Pro	Arg	Thr	Phe	Val	Leu	Gly	Asn	Ile	Pro	Asn	Ser	Val
		515					520					525			
Ile	Tyr	Arg	Asn	Val	Glu	His	Tyr	Gln	Asn	Ala	Lys	His	Val	Pro	Gly
	530					535					540				
Met	Leu	Ile	Leu	Glu	Ile	Asp	Ala	Pro	Ile	Tyr	Phe	Ala	Asn	Ala	Ser

545		550		555		560									
Tyr	Leu	Arg	Glu	Arg	Ile	Thr	Arg	Trp	Ile	Asp	Glu	Glu	Glu	Glu	Arg
			565						570					575	
Ile	Lys	Ala	Thr	Gly	Glu	Thr	Ser	Leu	Gln	Tyr	Val	Ile	Ile	Asp	Met
			580					585					590		
Ser	Ala	Val	Gly	Asn	Ile	Asp	Thr	Ser	Gly	Ile	Ser	Met	Leu	Glu	Glu
		595					600					605			
Val	Lys	Lys	Ile	Thr	Glu	Arg	Arg	Glu	Leu	Gln	Leu	Val	Leu	Val	Asn
	610					615					620				
Pro	Val	Ser	Glu	Val	Met	Lys	Lys	Leu	Asn	Lys	Ser	Lys	Phe	Gln	Asn
625					630					635					640
His	Leu	Gly	Lys	Lys	Trp	Ile	Tyr	Leu	Thr	Val	Glu	Glu	Ala	Val	Gly
			645						650					655	
Ala	Cys	Asn	Phe	Asn	Leu	Arg	Ala	Ser	Lys	Thr	Asn	Pro	Lys	Lys	Asp
		660						665					670		
Glu	Thr	Glu	Gly	Trp	Asn	Asn	Val								
	675					680									

<210> 19
 <211> 2311
 <212> DNA
 <213> Triticum aestivum

<400> 19

gcacgagggc	cggtgaaccc	tgagcgcgcg	gcggtcccat	ccaccgatca	caggaaccac	60
cgtatatccg	gataacaaaa	atgtgttcca	gtagcagaga	tggttcatca	tatatctgac	120
gaggcagcag	atgaacctag	catcaccaca	cagacacccc	ccaatgaccc	atctcaagca	180
ccgctggtgt	acaaagtggg	ctatccccct	ccgaagaact	tggccacaga	gtttacagaa	240
acattgaggg	agactttctt	ccacgacaac	ccgctgcgtc	agtataaggg	ccaatccgga	300
ccgaggaggt	tcattgatgg	gctggagttc	ttgtttccta	tatttgggtg	gggtagggat	360
tacagtctca	acaagttcaa	aggcgatctg	attgccggat	tgaccatcgc	aagtctctgt	420
attcctcagg	acattggcta	ttcgaagctt	gctaattctg	atccgcagta	tgggctttac	480
tccagcttca	ttcctccatt	gatctatgct	gcaatgggta	gctcaaggga	tatagcgatt	540
ggtccagttg	ctgtgggttc	tcttttgata	ggttcacttc	tacaagctga	ggttgaccat	600
gtcaaaaaca	aggaggaata	catgcgcctc	gctttcacgg	caaccttctt	cgctgggtatc	660
actcaagcag	cottaggatt	tctaaggtta	ggattcctta	tagagttctt	gtcgcagtgt	720
gcgattgtcg	gattcatggg	gggagctgcc	attactattg	ccctgcagca	gctgaaatac	780
gtgttgggca	tcgcaaactt	tacaaggaaa	accgacatag	ttctgtcat	ggaatctgtc	840
tggagatcag	ttcatcacgg	gtggaactgg	cagacaattg	tgattggcgt	atctttcctg	900
gttttccttc	tgtttgcgaa	gtacatcgga	aagaagaaaa	ggaagctttt	ctgggtgccca	960
gctattgtct	ctataatttc	agtgattcta	gcaacatttt	ttgtatacat	tactcgtgcc	1020
gacaagcaag	gagttcagat	agtgaagcac	attgaacagg	gaatcaaccc	atcatcagta	1080
cacaagattt	atttcaccgg	cccatgtgtt	gcaaaagggt	tcaagatcgg	tggtgtttgc	1140
ggcatagttg	gtttgacaga	agctgtagct	attggaagga	catttgctgc	tatgaaggac	1200
taccagttag	atggaaacaa	ggagatggta	gcacttgga	ccatgaacat	agtaggctca	1260
atgacatctt	gctatgtcac	aacaggttct	ttctcacgtt	cggcagttaa	cttcatggct	1320
ggctgaaga	ctcctgtatc	caatgtgggt	atgtcagtag	tggttcttct	taccttgggt	1380
gtcatcacac	cgctattcaa	atatacacgg	aatgcaatcc	tagggtcgat	cattatttct	1440
gcggtgatcg	gcottgtgga	ctacgaagca	gcaattctca	tctggaaagt	tgacaaattg	1500
gacttcattg	cttgcattgg	agcttttttc	ggtgttgttt	ttgtatccgt	tgagattggc	1560
ctcttgattg	ctgtagcaat	ctcatttgcc	aaaatacttc	ttcaagtaac	aaggccaagg	1620
acagccctac	ttggaaacct	tcccggcacc	actatatacc	ggaacatcag	ccagtatcca	1680

```

gaagcaaaac ttactcctgg ggtggtgatt gtgagggttg attctgctat ttatttttcc 1740
aactctaatt acgtccgaga aagaattctt aggtggctga cagacgaaga agacagagct 1800
aaagcagtg gattgcctaa aatcagtttc ctgattgtgg aaatgtcgcc ggcatcgcac 1860
atcgatacaa gcggcataca tgctcttgaa gatctataca agaattcttca gaaaaaagat 1920
atgcagctca ttctgtcgaa tcctggttcc gtcgtcatag aaaaactgca agcgtcgaag 1980
ctcaccgagc acattggaag cagcaatata ttcctcgcg tctctgacgc tgtgcgattc 2040
tgtacgacga agtcgatgca ggaaccgtga gcgaagtagt tcggaggaat ggctggagtt 2100
gagaatagtt tggccgctcc ctgtgatcta agctgggaca gcgcaatatg atgtggcttt 2160
gtggccaatg tagaaacata taataagtta aggcaatcac cggagcttct ccggtttact 2220
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2280
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa a a 2311

```

```

<210> 20
<211> 656
<212> PRT
<213> Triticum aestivum

```

```

<400> 20
Met Val His His Ile Ser Asp Glu Ala Ala Asp Glu Pro Ser Ile Thr
  1          5          10          15

Thr Gln Thr Pro Pro Asn Asp Pro Ser Gln Ala Pro Leu Val Tyr Lys
          20          25          30

Val Gly Tyr Pro Pro Pro Lys Asn Leu Ala Thr Glu Phe Thr Glu Thr
          35          40          45

Leu Arg Glu Thr Phe Phe His Asp Asn Pro Leu Arg Gln Tyr Lys Gly
          50          55          60

Gln Ser Gly Pro Arg Arg Phe Met Met Gly Leu Glu Phe Leu Phe Pro
          65          70          75          80

Ile Phe Gly Trp Gly Arg Asp Tyr Ser Leu Asn Lys Phe Lys Gly Asp
          85          90          95

Leu Ile Ala Gly Leu Thr Ile Ala Ser Leu Cys Ile Pro Gln Asp Ile
          100          105          110

Gly Tyr Ser Lys Leu Ala Asn Leu Asp Pro Gln Tyr Gly Leu Tyr Ser
          115          120          125

Ser Phe Ile Pro Pro Leu Ile Tyr Ala Ala Met Gly Ser Ser Arg Asp
          130          135          140

Ile Ala Ile Gly Pro Val Ala Val Val Ser Leu Leu Ile Gly Ser Leu
          145          150          155          160

Leu Gln Ala Glu Val Asp His Val Lys Asn Lys Glu Glu Tyr Met Arg
          165          170          175

Leu Ala Phe Thr Ala Thr Phe Phe Ala Gly Ile Thr Gln Ala Ala Leu
          180          185          190

Gly Phe Leu Arg Leu Gly Phe Leu Ile Glu Phe Leu Ser His Ala Ala
          195          200          205

Ile Val Gly Phe Met Gly Gly Ala Ala Ile Thr Ile Ala Leu Gln Gln
          210          215          220

```

Leu	Lys	Tyr	Val	Leu	Gly	Ile	Ala	Asn	Phe	Thr	Arg	Lys	Thr	Asp	Ile	225	230	235	240
Val	Ser	Val	Met	Glu	Ser	Val	Trp	Arg	Ser	Val	His	His	Gly	Trp	Asn	245	250	255	
Trp	Gln	Thr	Ile	Val	Ile	Gly	Val	Ser	Phe	Leu	Val	Phe	Leu	Leu	Phe	260	265	270	
Ala	Lys	Tyr	Ile	Gly	Lys	Lys	Lys	Arg	Lys	Leu	Phe	Trp	Val	Pro	Ala	275	280	285	
Ile	Ala	Pro	Ile	Ile	Ser	Val	Ile	Leu	Ala	Thr	Phe	Phe	Val	Tyr	Ile	290	295	300	
Thr	Arg	Ala	Asp	Lys	Gln	Gly	Val	Gln	Ile	Val	Lys	His	Ile	Glu	Gln	305	310	315	320
Gly	Ile	Asn	Pro	Ser	Ser	Val	His	Lys	Ile	Tyr	Phe	Thr	Gly	Pro	Phe	325	330	335	
Val	Ala	Lys	Gly	Phe	Lys	Ile	Gly	Val	Val	Cys	Gly	Ile	Val	Gly	Leu	340	345	350	
Thr	Glu	Ala	Val	Ala	Ile	Gly	Arg	Thr	Phe	Ala	Ala	Met	Lys	Asp	Tyr	355	360	365	
Gln	Leu	Asp	Gly	Asn	Lys	Glu	Met	Val	Ala	Leu	Gly	Thr	Met	Asn	Ile	370	375	380	
Val	Gly	Ser	Met	Thr	Ser	Cys	Tyr	Val	Thr	Thr	Gly	Ser	Phe	Ser	Arg	385	390	395	400
Ser	Ala	Val	Asn	Phe	Met	Ala	Gly	Cys	Lys	Thr	Pro	Val	Ser	Asn	Val	405	410	415	
Val	Met	Ser	Val	Val	Val	Leu	Leu	Thr	Leu	Leu	Val	Ile	Thr	Pro	Leu	420	425	430	
Phe	Lys	Tyr	Thr	Pro	Asn	Ala	Ile	Leu	Gly	Ser	Ile	Ile	Ile	Ser	Ala	435	440	445	
Val	Ile	Gly	Leu	Val	Asp	Tyr	Glu	Ala	Ala	Ile	Leu	Ile	Trp	Lys	Val	450	455	460	
Asp	Lys	Leu	Asp	Phe	Ile	Ala	Cys	Met	Gly	Ala	Phe	Phe	Gly	Val	Val	465	470	475	480
Phe	Val	Ser	Val	Glu	Ile	Gly	Leu	Leu	Ile	Ala	Val	Ala	Ile	Ser	Phe	485	490	495	
Ala	Lys	Ile	Leu	Leu	Gln	Val	Thr	Arg	Pro	Arg	Thr	Ala	Leu	Leu	Gly	500	505	510	
Asn	Leu	Pro	Gly	Thr	Thr	Ile	Tyr	Arg	Asn	Ile	Ser	Gln	Tyr	Pro	Glu	515	520	525	
Ala	Lys	Leu	Thr	Pro	Gly	Val	Val	Ile	Val	Arg	Val	Asp	Ser	Ala	Ile	530	535	540	

Tyr Phe Ser Asn Ser Asn Tyr Val Arg Glu Arg Ile Leu Arg Trp Leu
 545 550 555 560
 Thr Asp Glu Glu Asp Arg Ala Lys Ala Val Gly Leu Pro Lys Ile Ser
 565 570 575
 Phe Leu Ile Val Glu Met Ser Pro Val Ile Asp Ile Asp Thr Ser Gly
 580 585 590
 Ile His Ala Leu Glu Asp Leu Tyr Lys Asn Leu Gln Lys Lys Asp Met
 595 600 605
 Gln Leu Ile Leu Ser Asn Pro Gly Ser Val Val Ile Glu Lys Leu Gln
 610 615 620
 Ala Ser Lys Leu Thr Glu His Ile Gly Ser Ser Asn Ile Phe Leu Ala
 625 630 635 640
 Val Ser Asp Ala Val Arg Phe Cys Thr Thr Lys Ser Met Gln Glu Pro
 645 650 655

<210> 21
 <211> 2022
 <212> DNA
 <213> Triticum aestivum

<400> 21
 gcacgagggc ggcgatggag agggcgcggg cgatggggcc gtgggagtg ggcgagggcg 60
 ctctcccgtg cttggcggtg atgcggagct acagatggaa ggaggacttc caggccgacc 120
 tcgccgcggc catcactgtc ggcgtcatgc ttgtgcctca ggcaatgtca tatgcaaagc 180
 tggctgggct tcacccaatt tatgggctct acacaggctt tgtccacta tttgtctacg 240
 cgatttttgg gtcctcacga caattagcag taggtccagt ggcacttgtc tctctgctag 300
 tgtccaatgt tcttgggggt atagttaatt catctagtga gctgtacacg gaattagcca 360
 tattattggc attcatgggt ggaatactgg aatgcttgat ggcattgcta agacttggct 420
 ggcttattcg ttccattagc cattctgtaa tatctggatt cactacagct tcggccatcg 480
 taattgggtt gtcccaaata aagtatttct tgggttacag tgttacaaga agtagcaaaa 540
 ttataccact tattgagagt ataattgctg gaatagatca gttctcctgg cctccatttg 600
 taatgggata agcgtttctt gttattcttc taataatgaa aaagctaggg aaaacaaata 660
 aaaaattacg ttccctgaga gcttctggtc cactaacagc tgttggttctt ggaacattgt 720
 ttgtgaaaat ttccgtcca actgccatat cagtggtagg tgaaataccg caaggccttc 780
 ccagtttctc cattcctcga ggatttgaac atctgatgtc cctaatacca actgcaatac 840
 ttatcactgg tgttgctatt ttggagctct ttgggattgc taaagcgtta gctgcgaaga 900
 atggttatga gttggactca aacaaagagt tatttggcct tggcttatca aatatatgcg 960
 gttcattctt ctctgcatat cctgctacag gctccttttc taggtctgct gtgaatcatg 1020
 aaagcggggc aaagactgga ttatcaggaa tcataatggg cataataatt tgcagtgtc 1080
 tcttgtttat gacaccatta ttactgata tacctcagtg tgcattggct gccattgtga 1140
 tttctgctgt cactggcctg gtagattatg aagaggccat cttcctgtgg ggtattgata 1200
 agaaggattt ctttctgtgg gcgatgacat ttactacaac cttaactttt ggcattgaga 1260
 ttggtgtcct tgttgggggc ggggtttcgc tggcatttgt gatccatgaa tctgcaaata 1320
 cgcatatagc tgttttgggc cgtttgcctg gcaccactgt gtacaggaat acattgcagt 1380
 accctgaggg ttatacatat aacgggattg ttgttgatgca ccaatctact 1440
 ttgctaacat aagttacata aaggacaggt tgcgtgagta tgagctcaaa ctcccaaatt 1500
 caaacctgtg acctgatgtt ggaagggtgt actttgtgat cctcgagatg tcccctgtta 1560
 catacatcga ctcgagcgtc gttcaagctc tcaaggacct gcaccaagaa tacaaagcac 1620
 gcgacatcca gattgctata gcgaatccta accggcaggt gcacctattg ctgtcaagag 1680
 cgggcatcat cgacatgatt gcgcgagggg ggtgtttcgt ccgagtgcac gacgcggtgc 1740
 aagtatgcct ccagcatgtg cggagtcat cgtcgaatgc cattaagtta tccccacagg 1800
 cgtctgggaa cttgacggag tctcccaagg cgcagcagcg gtatggcttc ctgaggaacc 1860
 tctggaaagc acaagacggt aatgggagcg ccggtgacga ggcccaatcg ttgctgcgcc 1920
 aaaaccttgt gtagccaatt gtctccctcc ctcagtgcaa tcatgatgca tgcatttcta 1980

tttgtgttgt tgtatgcatg tagattgtgc aggaaaaaaaa aa

2022

<210> 22

<211> 593

<212> PRT

<213> Triticum aestivum

<400> 22

Thr Arg Ala Ala Met Glu Arg Ala Arg Ala Met Gly Pro Trp Glu Trp
1 5 10 15

Ala Glu Ala Ala Leu Pro Cys Leu Ala Trp Met Arg Ser Tyr Arg Trp
20 25 30

Lys Glu Asp Phe Gln Ala Asp Leu Ala Ala Gly Ile Thr Val Gly Val
35 40 45

Met Leu Val Pro Gln Ala Met Ser Tyr Ala Lys Leu Ala Gly Leu His
50 55 60

Pro Ile Tyr Gly Leu Tyr Thr Gly Phe Val Pro Leu Phe Val Tyr Ala
65 70 75 80

Ile Phe Gly Ser Ser Arg Gln Leu Ala Val Gly Pro Val Ala Leu Val
85 90 95

Ser Leu Leu Val Ser Asn Val Leu Gly Gly Ile Val Asn Ser Ser Ser
100 105 110

Glu Leu Tyr Thr Glu Leu Ala Ile Leu Leu Ala Phe Met Val Gly Ile
115 120 125

Leu Glu Cys Leu Met Ala Leu Leu Arg Leu Gly Trp Leu Ile Arg Phe
130 135 140

Ile Ser His Ser Val Ile Ser Gly Phe Thr Thr Ala Ser Ala Ile Val
145 150 155 160

Ile Gly Leu Ser Gln Ile Lys Tyr Phe Leu Gly Tyr Ser Val Thr Arg
165 170 175

Ser Ser Lys Ile Ile Pro Leu Ile Glu Ser Ile Ile Ala Gly Ile Asp
180 185 190

Gln Phe Ser Trp Pro Pro Phe Val Met Gly Ser Ala Phe Leu Val Ile
195 200 205

Leu Leu Ile Met Lys Lys Leu Gly Lys Thr Asn Lys Lys Leu Arg Phe
210 215 220

Leu Arg Ala Ser Gly Pro Leu Thr Ala Val Val Leu Gly Thr Leu Phe
225 230 235 240

Val Lys Ile Phe Arg Pro Thr Ala Ile Ser Val Val Gly Glu Ile Pro
245 250 255

Gln Gly Leu Pro Ser Phe Ser Ile Pro Arg Gly Phe Glu His Leu Met
260 265 270

Ser Leu Met Pro Thr Ala Ile Leu Ile Thr Gly Val Ala Ile Leu Glu

275					280					285					
Ser	Val	Gly	Ile	Ala	Lys	Ala	Leu	Ala	Ala	Lys	Asn	Gly	Tyr	Glu	Leu
	290					295					300				
Asp	Ser	Asn	Lys	Glu	Leu	Phe	Gly	Leu	Gly	Leu	Ser	Asn	Ile	Cys	Gly
	305					310					315				320
Ser	Phe	Phe	Ser	Ala	Tyr	Pro	Ala	Thr	Gly	Ser	Phe	Ser	Arg	Ser	Ala
				325					330					335	
Val	Asn	His	Glu	Ser	Gly	Ala	Lys	Thr	Gly	Leu	Ser	Gly	Ile	Ile	Met
			340					345					350		
Gly	Ile	Ile	Ile	Cys	Ser	Ala	Leu	Leu	Phe	Met	Thr	Pro	Leu	Phe	Thr
		355					360					365			
Asp	Ile	Pro	Gln	Cys	Ala	Leu	Ala	Ala	Ile	Val	Ile	Ser	Ala	Val	Thr
	370					375					380				
Gly	Leu	Val	Asp	Tyr	Glu	Glu	Ala	Ile	Phe	Leu	Trp	Gly	Ile	Asp	Lys
	385					390					395				400
Lys	Asp	Phe	Phe	Leu	Trp	Ala	Met	Thr	Phe	Thr	Thr	Thr	Thr	Leu	Thr
				405					410					415	
Gly	Ile	Glu	Ile	Gly	Val	Leu	Val	Gly	Val	Gly	Phe	Ser	Leu	Ala	Phe
			420					425					430		
Val	Ile	His	Glu	Ser	Ala	Asn	Pro	His	Ile	Ala	Val	Leu	Gly	Arg	Leu
		435				440					445				
Pro	Gly	Thr	Thr	Val	Tyr	Arg	Asn	Thr	Leu	Gln	Tyr	Pro	Glu	Ala	Tyr
	450					455					460				
Thr	Tyr	Asn	Gly	Ile	Val	Val	Val	Arg	Val	Asp	Ala	Pro	Ile	Tyr	Phe
	465					470					475				480
Ala	Asn	Ile	Ser	Tyr	Ile	Lys	Asp	Arg	Leu	Arg	Glu	Tyr	Glu	Leu	Lys
				485					490					495	
Leu	Pro	Asn	Ser	Asn	Arg	Gly	Pro	Asp	Val	Gly	Arg	Val	Tyr	Phe	Val
			500					505					510		
Ile	Leu	Glu	Met	Ser	Pro	Val	Thr	Tyr	Ile	Asp	Ser	Ser	Ala	Val	Gln
		515					520					525			
Ala	Leu	Lys	Asp	Leu	His	Gln	Glu	Tyr	Lys	Ala	Arg	Asp	Ile	Gln	Ile
	530					535					540				
Ala	Ile	Ala	Asn	Pro	Asn	Arg	Gln	Val	His	Leu	Leu	Leu	Ser	Arg	Ala
	545					550					555				560
Gly	Ile	Ile	Asp	Met	Ile	Gly	Ala	Gly	Trp	Cys	Phe	Val	Arg	Val	His
				565					570					575	
Asp	Ala	Val	Gln	Val	Cys	Leu	Gln	His	Val	Arg	Ser	Ser	Ser	Ser	Asn
			580					585					590		
Ala															

<210> 23
 <211> 660
 <212> PRT
 <213> Sporobolus stapfianus

<400> 23

Met	Val	Gly	Met	Arg	Val	Pro	Tyr	Gly	Gly	Ser	Tyr	Thr	Asn	Asn	Gly
1				5					10					15	
Ser	Asn	Glu	Ser	Gln	Pro	Pro	Gly	Ala	Ala	Pro	Glu	Val	Pro	Ala	Met
			20					25					30		
Val	Glu	Val	His	Lys	Val	Val	Pro	Pro	Pro	Pro	Gln	Ser	Thr	Ala	Ser
		35					40					45			
Lys	Leu	Lys	Thr	Arg	Leu	Lys	Glu	Thr	Leu	Phe	Pro	Asp	Asp	Pro	Phe
	50					55					60				
Arg	Gly	Phe	Gln	Gly	Gln	Pro	Ala	Arg	Val	Gln	Trp	Val	Leu	Ala	Val
	65				70					75					80
Lys	Tyr	Leu	Phe	Pro	Ile	Leu	Asp	Trp	Leu	Pro	Ala	Tyr	Ser	Leu	Ser
				85					90					95	
Leu	Phe	Lys	Ser	Asp	Leu	Ile	Ala	Gly	Leu	Thr	Ile	Ala	Ser	Leu	Ala
			100					105					110		
Ile	Pro	Gln	Gly	Ile	Ser	Tyr	Ala	Lys	Leu	Ala	Asn	Leu	Pro	Pro	Leu
		115					120					125			
Ile	Gly	Leu	Tyr	Ser	Ser	Phe	Val	Pro	Pro	Leu	Val	Tyr	Ala	Val	Leu
	130					135					140				
Gly	Ser	Ser	Arg	Asp	Leu	Ala	Val	Gly	Pro	Val	Ser	Ile	Ser	Ser	Leu
145					150					155					160
Ile	Met	Gly	Pro	Cys	Cys	Ala	Ser	Arg	Gln	Pro	His	Cys	Gly	Ala	Asp
				165					170					175	
Ala	Val	Pro	Ala	Ala	Arg	Leu	His	Ala	Thr	Leu	Phe	Ala	Gly	Ile	Phe
			180					185					190		
Gln	Ala	Ser	Leu	Gly	Ile	Leu	Arg	Leu	Gly	Phe	Ile	Ile	Asp	Phe	Leu
		195					200					205			
Ser	Lys	Ala	Thr	Leu	Val	Gly	Phe	Met	Ala	Gly	Ala	Ala	Ile	Ile	Val
	210					215					220				
Ser	Leu	Gln	Gln	Leu	Lys	Ala	Leu	Leu	Gly	Ile	Val	His	Phe	Thr	Thr
225					230					235					240
Glu	Met	Gly	Ile	Val	Pro	Val	Met	Ala	Ser	Val	Phe	His	His	Thr	Lys
				245					250					255	
Glu	Trp	Ser	Trp	Gln	Thr	Ile	Leu	Met	Gly	Val	Cys	Phe	Leu	Val	Phe
			260					265					270		
Leu	Leu	Val	Ala	Arg	His	Val	Ser	Ile	Arg	Trp	Pro	Arg	Leu	Phe	Trp

275					280					285					
Val	Ser	Ala	Cys	Ala	Pro	Leu	Val	Ser	Val	Ile	Ile	Ser	Thr	Leu	Val
290					295					300					
Val	Phe	Leu	Phe	Lys	Ala	Gln	Asn	His	Gly	Ile	Ser	Ile	Ile	Gly	Gln
305					310					315					320
Leu	Lys	Cys	Gly	Leu	Asn	Arg	Pro	Ser	Trp	Asp	Lys	Thr	Asn	Ile	Asp
				325					330					335	
Thr	Thr	Tyr	Leu	Gly	Leu	Thr	Met	Lys	Thr	Gly	Leu	Val	Thr	Gly	Ile
			340					345						350	
Ile	Ser	Leu	Thr	Glu	Gly	Ile	Ala	Val	Gly	Arg	Thr	Phe	Ala	Ser	Leu
		355					360					365			
Lys	Glu	Tyr	Gln	Ile	Asp	Gly	Asn	Lys	Glu	Met	Met	Ala	Ile	Gly	Leu
	370					375					380				
Met	Asn	Val	Val	Gly	Ser	Cys	Thr	Ser	Cys	Tyr	Val	Thr	Thr	Gly	Ala
385					390					395					400
Phe	Ser	Arg	Ser	Pro	Val	Asn	His	Asn	Ala	Gly	Cys	Lys	Thr	Ala	Met
				405					410					415	
Ser	Asn	Val	Ile	Met	Ala	Leu	Thr	Val	Met	Val	Thr	Leu	Leu	Phe	Leu
			420					425					430		
Met	Pro	Leu	Phe	Val	Tyr	Thr	Pro	Asn	Val	Val	Leu	Gly	Ala	Ile	Ile
		435					440					445			
Ile	Ala	Ala	Val	Ile	Gly	Leu	Ile	Asp	Ile	Pro	Ala	Val	Tyr	His	Ile
	450					455					460				
Trp	Lys	Met	Asp	Lys	Met	Asp	Phe	Leu	Val	Cys	Val	Cys	Ala	Phe	Ala
465					470					475					480
Gly	Val	Leu	Phe	Ile	Ser	Val	Gln	Glu	Gly	Leu	Ala	Ile	Ala	Val	Gly
				485					490					495	
Ile	Ser	Val	Phe	Arg	Val	Leu	Leu	Gln	Ile	Thr	Arg	Pro	Lys	Ile	Thr
			500					505					510		
Val	Gln	Gly	Asn	Ile	Met	Gly	Thr	Asp	Ile	Tyr	Arg	Asn	Leu	His	Gln
		515					520					525			
Tyr	Lys	Asp	Ala	Gln	Arg	Ile	Pro	Gly	Phe	Leu	Ile	Leu	Ala	Thr	Glu
	530					535					540				
Ala	Pro	Ile	Asn	Phe	Ala	Asn	Ser	Asn	Tyr	Leu	Asn	Glu	Arg	Ile	Lys
545					550					555					560
Arg	Trp	Ile	Glu	Glu	Glu	Ser	Ser	Ala	Gln	Thr	Lys	Gln	Thr	Glu	Leu
				565					570					575	
Arg	Phe	Val	Ile	Leu	Asp	Leu	Ser	Ala	Val	Pro	Ala	Ile	Asp	Thr	Ser
			580					585					590		
Gly	Val	Ala	Phe	Leu	Ile	Asp	Ile	Lys	Lys	Ser	Ile	Glu	Lys	Arg	Gly

595	600	605
Leu Glu Leu Val Leu Val Asn Pro Thr Gly Glu Gly His Gly Lys Asn		
610	615	620
Thr Ala Ser Glu Arg Gly Thr Gln Ala Phe Gln Val Gly Ile Ala Cys		
625	630	635 640
Ile Leu Thr Thr Gly Glu Ala Val Ala Ser Leu Ser Ala Leu Ala Lys		
	645 650	655
Met Ala Ser Pro		
	660	

<210> 24
 <211> 658
 <212> PRT
 <213> Arabidopsis thaliana

<400> 24
Met Gly Thr Glu Asp Tyr Thr Phe Pro Gln Gly Ala Glu Glu Leu His
1 5 10 15
Arg Arg His His Thr Val Glu Ala Pro Gln Pro Gln Pro Phe Leu Lys
20 25 30
Ser Leu Gln Tyr Ser Val Lys Glu Thr Leu Phe Pro Asp Asp Pro Phe
35 40 45
Arg Gln Phe Lys Asn Gln Asn Ala Ser Arg Lys Phe Val Leu Gly Leu
50 55 60
Lys Tyr Phe Leu Pro Ile Phe Glu Trp Ala Pro Arg Tyr Asn Leu Lys
65 70 75 80
Phe Phe Lys Ser Asp Leu Ile Ala Gly Ile Thr Ile Ala Ser Leu Ala
85 90 95
Ile Pro Gln Gly Ile Ser Tyr Ala Lys Leu Ala Asn Leu Pro Pro Ile
100 105 110
Leu Gly Leu Tyr Ser Ser Phe Val Pro Pro Leu Val Tyr Ala Val Leu
115 120 125
Gly Ser Ser Arg Asp Leu Ala Val Gly Thr Val Ala Val Ala Ser Leu
130 135 140
Leu Thr Gly Ala Met Leu Ser Lys Glu Val Asp Ala Glu Lys Asp Pro
145 150 155 160
Lys Leu Tyr Leu His Leu Ala Phe Thr Ala Thr Phe Phe Ala Gly Val
165 170 175
Leu Glu Ala Ser Leu Gly Ile Phe Arg Leu Gly Phe Ile Val Asp Phe
180 185 190
Leu Ser His Ala Thr Ile Val Gly Phe Met Gly Gly Ala Ala Thr Val
195 200 205
Val Ser Leu Gln Gln Leu Lys Gly Ile Phe Gly Leu Lys His Phe Thr

210				215				220							
Asp	Ser	Thr	Asp	Val	Ile	Ser	Val	Met	Arg	Ser	Val	Phe	Ser	Gln	Thr
225					230					235					240
His	Glu	Trp	Arg	Trp	Glu	Ser	Gly	Val	Leu	Gly	Cys	Gly	Phe	Leu	Phe
				245					250					255	
Phe	Leu	Leu	Ser	Thr	Arg	Tyr	Phe	Ser	Ile	Lys	Lys	Pro	Lys	Phe	Phe
			260					265					270		
Trp	Val	Ala	Ala	Met	Ala	Pro	Leu	Thr	Ser	Val	Ile	Leu	Gly	Ser	Leu
		275					280						285		
Leu	Val	Tyr	Phe	Thr	His	Ala	Glu	Arg	His	Gly	Val	Gln	Val	Ile	Gly
	290					295					300				
Asp	Leu	Lys	Lys	Gly	Leu	Asn	Pro	Leu	Ser	Gly	Ser	Asp	Leu	Ile	Phe
305					310					315					320
Thr	Ser	Pro	Tyr	Met	Ser	Thr	Ala	Val	Lys	Thr	Gly	Leu	Ile	Thr	Gly
				325					330					335	
Ile	Ile	Ala	Leu	Ala	Glu	Gly	Ile	Ala	Val	Gly	Arg	Ser	Phe	Ala	Met
			340					345					350		
Phe	Lys	Asn	Tyr	Asn	Ile	Asp	Gly	Asn	Lys	Glu	Met	Ile	Ala	Phe	Gly
		355					360					365			
Met	Met	Asn	Ile	Val	Gly	Ser	Phe	Thr	Ser	Cys	Tyr	Leu	Thr	Thr	Gly
	370					375					380				
Pro	Phe	Ser	Arg	Ser	Ala	Val	Asn	Tyr	Asn	Ala	Gly	Cys	Lys	Thr	Ala
385					390					395					400
Met	Ser	Asn	Ile	Val	Met	Ala	Ile	Ala	Val	Met	Phe	Thr	Leu	Leu	Phe
			405						410					415	
Leu	Thr	Pro	Leu	Phe	His	Tyr	Thr	Pro	Leu	Val	Val	Leu	Ser	Ala	Ile
			420					425					430		
Ile	Ile	Ser	Ala	Met	Leu	Gly	Leu	Ile	Asp	Tyr	Gln	Ala	Ala	Ile	His
		435					440					445			
Leu	Trp	Lys	Val	Asp	Lys	Phe	Asp	Phe	Leu	Val	Cys	Met	Ser	Ala	Tyr
	450					455					460				
Val	Gly	Val	Val	Phe	Gly	Ser	Val	Glu	Ile	Gly	Leu	Val	Val	Ala	Val
465					470					475					480
Ala	Ile	Ser	Ile	Ala	Arg	Leu	Leu	Leu	Phe	Val	Ser	Arg	Pro	Lys	Thr
			485						490					495	
Ala	Val	Lys	Gly	Asn	Ile	Pro	Asn	Ser	Met	Ile	Tyr	Arg	Asn	Thr	Glu
			500					505					510		
Gln	Tyr	Pro	Ser	Ser	Arg	Thr	Val	Pro	Gly	Ile	Leu	Ile	Leu	Glu	Ile
		515					520						525		
Asp	Ala	Pro	Ile	Tyr	Phe	Ala	Asn	Ala	Ser	Tyr	Leu	Arg	Glu	Arg	Ile

530					535					540					
Ile	Arg	Trp	Ile	Asp	Glu	Glu	Glu	Glu	Arg	Val	Lys	Gln	Ser	Gly	Glu
545					550					555					560
Ser	Ser	Leu	Gln	Tyr	Ile	Ile	Leu	Asp	Met	Ser	Ala	Val	Gly	Asn	Ile
				565					570					575	
Asp	Thr	Ser	Gly	Ile	Ser	Met	Met	Val	Glu	Ile	Lys	Lys	Val	Ile	Asp
			580					585					590		
Arg	Arg	Ala	Leu	Lys	Leu	Val	Leu	Ser	Asn	Pro	Lys	Gly	Glu	Val	Val
		595					600					605			
Lys	Lys	Leu	Thr	Arg	Ser	Lys	Phe	Ile	Gly	Asp	His	Leu	Gly	Lys	Glu
	610					615					620				
Trp	Met	Phe	Leu	Thr	Val	Gly	Glu	Ala	Val	Glu	Ala	Cys	Ser	Tyr	Met
625					630					635					640
Leu	His	Thr	Phe	Lys	Thr	Glu	Pro	Ala	Ser	Lys	Asn	Glu	Pro	Trp	Asn
				645					650					655	

Asn Val

<210> 25
 <211> 644
 <212> PRT
 <213> Stylosanthes hamata

<400> 25															
Met	Ser	Ser	Leu	Gly	Thr	Glu	Gln	Phe	Ser	Glu	Arg	Ser	Gln	Trp	Val
1				5					10					15	
Leu	Asn	Ser	Pro	Asn	Pro	Pro	Pro	Leu	Thr	Lys	Lys	Phe	Leu	Gly	Pro
			20					25					30		
Leu	Lys	Asp	Asn	Lys	Phe	Phe	Thr	Ser	Ser	Ser	Ser	Lys	Lys	Glu	Thr
		35					40					45			
Arg	Ala	Val	Ser	Phe	Leu	Ala	Ser	Leu	Phe	Pro	Ile	Leu	Ser	Trp	Ile
	50					55				60					
Arg	Thr	Tyr	Ser	Ala	Thr	Lys	Phe	Lys	Asp	Asp	Leu	Leu	Ser	Gly	Leu
65					70					75					80
Thr	Leu	Ala	Ser	Leu	Ser	Ile	Pro	Gln	Ser	Ile	Gly	Tyr	Ala	Asn	Leu
				85					90					95	
Ala	Lys	Leu	Asp	Pro	Gln	Tyr	Gly	Leu	Tyr	Thr	Ser	Val	Ile	Pro	Pro
			100					105					110		
Val	Ile	Tyr	Ala	Leu	Met	Gly	Ser	Ser	Arg	Glu	Ile	Ala	Ile	Gly	Pro
		115					120					125			
Val	Ala	Val	Val	Ser	Met	Leu	Leu	Ser	Ser	Leu	Val	Pro	Lys	Val	Ile
	130					135					140				
Asp	Pro	Asp	Ala	His	Pro	Asn	Asp	Tyr	Arg	Asn	Leu	Val	Phe	Thr	Val

145					150					155					160
Thr	Leu	Phe	Ala	Gly	Ile	Phe	Gln	Thr	Ala	Phe	Gly	Val	Leu	Arg	Leu
				165					170					175	
Gly	Phe	Leu	Val	Asp	Phe	Leu	Ser	His	Ala	Ala	Leu	Val	Gly	Phe	Met
			180					185					190		
Ala	Gly	Ala	Ala	Ile	Val	Ile	Gly	Leu	Gln	Gln	Leu	Lys	Gly	Leu	Leu
			195				200					205			
Gly	Leu	Thr	His	Phe	Thr	Thr	Lys	Thr	Asp	Ala	Val	Ala	Val	Leu	Lys
	210					215					220				
Ser	Val	Tyr	Thr	Ser	Leu	His	Gln	Gln	Ile	Thr	Ser	Ser	Glu	Asn	Trp
225					230					235					240
Ser	Pro	Leu	Asn	Phe	Val	Ile	Gly	Cys	Ser	Phe	Leu	Ile	Phe	Leu	Leu
				245					250					255	
Ala	Ala	Arg	Phe	Ile	Gly	Arg	Arg	Asn	Lys	Lys	Phe	Phe	Trp	Leu	Pro
			260					265					270		
Ala	Ile	Ala	Pro	Leu	Leu	Ser	Val	Ile	Leu	Ser	Thr	Leu	Ile	Val	Phe
		275					280					285			
Leu	Ser	Lys	Gly	Asp	Lys	His	Gly	Val	Asn	Ile	Ile	Lys	His	Val	Gln
	290					295					300				
Gly	Gly	Leu	Asn	Pro	Ser	Ser	Val	His	Lys	Leu	Gln	Leu	Asn	Gly	Pro
305					310					315					320
His	Val	Gly	Gln	Ala	Ala	Lys	Ile	Gly	Leu	Ile	Ser	Ala	Ile	Ile	Ala
				325					330					335	
Leu	Thr	Glu	Ala	Ile	Ala	Val	Gly	Arg	Ser	Phe	Ala	Asn	Ile	Lys	Gly
			340					345					350		
Tyr	His	Leu	Asp	Gly	Asn	Lys	Glu	Met	Leu	Ala	Met	Gly	Cys	Met	Asn
		355					360					365			
Ile	Ala	Gly	Ser	Leu	Thr	Ser	Cys	Tyr	Val	Ser	Thr	Gly	Ser	Phe	Ser
	370					375					380				
Arg	Thr	Ala	Val	Asn	Phe	Ser	Ala	Gly	Cys	Lys	Thr	Ala	Val	Ser	Asn
385					390					395					400
Ile	Val	Met	Ala	Val	Thr	Val	Leu	Leu	Cys	Leu	Glu	Leu	Phe	Thr	Arg
				405					410					415	
Leu	Leu	Tyr	Tyr	Thr	Pro	Met	Ala	Ile	Leu	Ala	Ser	Ile	Ile	Leu	Ser
			420					425					430		
Ala	Leu	Pro	Gly	Leu	Ile	Asp	Ile	Gly	Glu	Ala	Tyr	His	Ile	Trp	Lys
		435					440					445			
Val	Asp	Lys	Phe	Asp	Phe	Leu	Ala	Cys	Leu	Gly	Ala	Phe	Phe	Gly	Val
	450					455					460				
Leu	Phe	Val	Ser	Ile	Glu	Ile	Gly	Leu	Leu	Ile	Ala	Leu	Ser	Ile	Ser

465		470		475		480									
Phe	Ala	Lys	Ile	Leu	Leu	Gln	Ala	Ile	Arg	Pro	Gly	Val	Glu	Val	Leu
				485					490					495	
Gly	Arg	Ile	Pro	Thr	Thr	Glu	Ala	Tyr	Cys	Asp	Val	Ala	Gln	Tyr	Pro
			500					505					510		
Met	Ala	Val	Thr	Thr	Pro	Gly	Ile	Leu	Val	Ile	Arg	Ile	Ser	Ser	Gly
		515					520					525			
Ser	Leu	Cys	Phe	Ala	Asn	Ala	Gly	Phe	Val	Arg	Glu	Arg	Ile	Leu	Lys
	530					535					540				
Trp	Val	Glu	Asp	Glu	Glu	Gln	Asp	Asn	Ile	Glu	Glu	Ala	Ala	Lys	Gly
545					550					555					560
Arg	Val	Gln	Ala	Ile	Ile	Ile	Asp	Met	Thr	Asp	Leu	Thr	Asn	Val	Asp
				565					570					575	
Thr	Ser	Gly	Ile	Leu	Ala	Leu	Glu	Glu	Leu	His	Lys	Lys	Leu	Leu	Ser
			580					585					590		
Arg	Gly	Val	Glu	Leu	Ala	Met	Val	Asn	Pro	Arg	Trp	Glu	Val	Ile	His
		595					600					605			
Lys	Leu	Lys	Val	Ala	Asn	Phe	Val	Asp	Lys	Ile	Gly	Lys	Glu	Arg	Val
	610					615					620				
Phe	Leu	Thr	Val	Ala	Glu	Ala	Val	Asp	Ala	Cys	Leu	Ser	Ser	Arg	Phe
625					630					635					640

Ala Asn Ser Ala

<210> 26
 <211> 646
 <212> PRT
 <213> Arabidopsis thaliana

<400> 26
Met Gly Thr Glu Asp Tyr Thr Phe Pro Gln Gly Ala Glu Glu Leu His
1 5 10 15
Arg Arg His His Thr Val Glu Ala Pro Gln Pro Gln Pro Phe Leu Lys
20 25 30
Ser Leu Gln Tyr Ser Val Lys Glu Thr Leu Phe Pro Asp Asp Pro Phe
35 40 45
Arg Gln Phe Lys Asn Gln Asn Ala Ser Arg Lys Phe Val Leu Gly Leu
50 55 60
Lys Tyr Phe Leu Pro Ile Phe Glu Trp Ala Pro Arg Tyr Asn Leu Lys
65 70 75 80
Phe Phe Lys Ser Asp Leu Ile Ala Gly Ile Thr Ile Ala Ser Leu Ala
85 90 95
Ile Pro Gln Gly Ile Ser Tyr Ala Lys Leu Ala Asn Leu Pro Pro Ile

100						105						110					
Leu	Gly	Leu	Tyr	Ser	Ser	Phe	Val	Pro	Pro	Leu	Val	Tyr	Ala	Val	Leu		
		115					120					125					
Gly	Ser	Ser	Arg	Asp	Leu	Ala	Val	Gly	Thr	Val	Ala	Val	Ala	Ser	Leu		
	130					135					140						
Leu	Thr	Gly	Ala	Met	Leu	Ser	Lys	Glu	Val	Asp	Ala	Glu	Lys	Asp	Pro		
145					150					155					160		
Lys	Leu	Tyr	Leu	His	Leu	Ala	Phe	Thr	Ala	Thr	Phe	Phe	Ala	Gly	Val		
				165					170					175			
Leu	Glu	Ala	Ser	Leu	Gly	Ile	Phe	Arg	Leu	Gly	Phe	Ile	Val	Asp	Phe		
			180					185					190				
Leu	Ser	His	Ala	Thr	Ile	Val	Gly	Phe	Met	Gly	Gly	Ala	Ala	Thr	Val		
	195						200					205					
Val	Ser	Leu	Gln	Gln	Leu	Lys	Gly	Ile	Phe	Gly	Leu	Lys	His	Phe	Thr		
	210					215					220						
Asp	Ser	Thr	Asp	Val	Ile	Ser	Val	Met	Arg	Ser	Val	Phe	Ser	Gln	Thr		
225					230					235					240		
His	Glu	Trp	Arg	Trp	Glu	Ser	Gly	Val	Leu	Gly	Cys	Gly	Phe	Leu	Phe		
				245					250					255			
Phe	Leu	Leu	Ser	Thr	Arg	Tyr	Phe	Ser	Ile	Lys	Lys	Pro	Lys	Phe	Phe		
			260					265					270				
Trp	Val	Ala	Ala	Met	Ala	Pro	Leu	Thr	Ser	Val	Ile	Leu	Gly	Ser	Leu		
		275					280					285					
Leu	Val	Tyr	Phe	Thr	His	Ala	Glu	Arg	His	Gly	Val	Gln	Val	Gly	Ser		
	290					295					300						
Asp	Leu	Ile	Phe	Thr	Ser	Pro	Tyr	Met	Ser	Thr	Ala	Val	Lys	Thr	Gly		
305					310					315					320		
Leu	Ile	Thr	Gly	Ile	Ile	Ala	Leu	Ala	Glu	Gly	Val	Ala	Val	Gly	Arg		
				325					330					335			
Ser	Phe	Ala	Met	Phe	Lys	Asn	Tyr	Asn	Ile	Asp	Gly	Asn	Lys	Glu	Met		
			340					345					350				
Ile	Ala	Phe	Gly	Met	Met	Asn	Ile	Val	Gly	Ser	Phe	Thr	Ser	Cys	Tyr		
		355					360					365					
Leu	Thr	Thr	Gly	Pro	Phe	Ser	Arg	Ser	Ala	Val	Asn	Tyr	Asn	Ala	Gly		
	370					375					380						
Cys	Lys	Thr	Ala	Met	Ser	Asn	Ile	Val	Met	Ala	Ile	Ala	Val	Met	Phe		
385					390					395					400		
Thr	Leu	Leu	Phe	Leu	Thr	Pro	Leu	Phe	His	Tyr	Thr	Pro	Leu	Val	Val		
				405					410					415			
Leu	Ser	Ala	Ile	Ile	Ile	Ser	Ala	Met	Leu	Gly	Leu	Ile	Asp	Tyr	Gln		

420					425					430					
Ala	Ala	Ile	His	Leu	Trp	Lys	Val	Asp	Lys	Phe	Asp	Phe	Leu	Val	Cys
		435					440					445			
Met	Ser	Ala	Tyr	Val	Gly	Val	Val	Phe	Gly	Ser	Val	Glu	Ile	Gly	Leu
	450					455					460				
Val	Val	Ala	Val	Ala	Ile	Ser	Ile	Ala	Arg	Leu	Leu	Leu	Phe	Val	Ser
	465					470					475				480
Arg	Pro	Lys	Thr	Ala	Val	Lys	Gly	Asn	Ile	Pro	Asn	Ser	Met	Ile	Tyr
				485					490					495	
Arg	Asn	Thr	Glu	Gln	Tyr	Pro	Ser	Ser	Arg	Thr	Val	Pro	Gly	Ile	Leu
			500					505					510		
Ile	Leu	Glu	Ile	Asp	Ala	Pro	Ile	Tyr	Phe	Ala	Asn	Ala	Ser	Tyr	Leu
		515					520					525			
Arg	Glu	Arg	Ile	Ile	Arg	Trp	Ile	Asp	Glu	Glu	Glu	Glu	Arg	Val	Lys
	530					535						540			
Gln	Ser	Gly	Glu	Ser	Ser	Leu	Gln	Tyr	Ile	Ile	Leu	Asp	Met	Ser	Ala
	545					550					555				560
Val	Gly	Asn	Ile	Asp	Thr	Ser	Gly	Ile	Ser	Met	Met	Val	Glu	Ile	Lys
				565					570					575	
Lys	Val	Ile	Asp	Arg	Arg	Ala	Leu	Lys	Leu	Val	Leu	Ser	Asn	Pro	Lys
			580					585					590		
Gly	Glu	Val	Val	Lys	Lys	Leu	Thr	Arg	Ser	Lys	Phe	Ile	Gly	Asp	His
		595					600					605			
Leu	Gly	Lys	Glu	Trp	Met	Phe	Leu	Thr	Val	Gly	Glu	Ala	Val	Glu	Ala
	610					615					620				
Cys	Ser	Tyr	Met	Leu	His	Thr	Phe	Lys	Thr	Glu	Pro	Ala	Ser	Lys	Asn
	625					630					635				640
Glu	Pro	Trp	Asn	Asn	Val										
				645											

<210> 27
 <211> 233
 <212> PRT
 <213> Zea mays

<400> 27
 Ala Ile Gly Pro Val Ala Val Val Ser Leu Leu Leu Gly Thr Leu Leu
 1 5 10 15
 Gln Asn Glu Ile Asp Pro Lys Thr His Pro Leu Glu Tyr Arg Arg Leu
 20 25 30
 Ala Phe Thr Ala Thr Phe Phe Ala Gly Val Thr Gln Ala Ala Leu Gly
 35 40 45
 Phe Phe Arg Leu Gly Phe Ile Ile Glu Phe Leu Ser His Ala Ala Ile

50					55					60					
Val	Gly	Phe	Met	Ala	Gly	Ala	Ala	Ile	Thr	Ile	Ala	Leu	Gln	Gln	Leu
65					70					75					80
Lys	Gly	Phe	Leu	Gly	Ile	Ala	Asn	Phe	Thr	Lys	Lys	Ser	Asp	Ile	Val
				85					90					95	
Ser	Val	Met	Lys	Ser	Val	Trp	Gly	Asn	Val	His	His	Gly	Trp	Asn	Trp
			100					105					110		
Gln	Thr	Ile	Leu	Ile	Gly	Ala	Thr	Phe	Leu	Ala	Phe	Leu	Leu	Val	Ala
		115					120					125			
Lys	Tyr	Ile	Gly	Lys	Arg	Asn	Lys	Lys	Leu	Phe	Trp	Val	Ser	Ala	Ile
	130					135					140				
Ala	Pro	Leu	Thr	Ser	Val	Ile	Ile	Ser	Thr	Phe	Phe	Val	Tyr	Ile	Thr
145					150					155					160
Arg	Ala	Asp	Lys	His	Gly	Val	Ala	Ile	Val	Lys	Asn	Ile	Arg	Lys	Gly
				165					170					175	
Ile	Asn	Pro	Pro	Ser	Ala	Ser	Leu	Ile	Tyr	Phe	Thr	Gly	Pro	Tyr	Leu
			180					185					190		
Ala	Thr	Gly	Phe	Lys	Ile	Gly	Ile	Val	Ala	Gly	Met	Ile	Gly	Leu	Thr
		195					200					205			
Glu	Ala	Ile	Ala	Ile	Gly	Arg	Thr	Phe	Ala	Ala	Leu	Lys	Asp	Tyr	Arg
	210					215					220				
Ile	Asp	Gly	Asn	Lys	Glu	Met	Val	Ala							
225					230										

<210> 28
 <211> 646
 <212> PRT
 <213> Arabidopsis thaliana

<400> 28															
Met	Ser	Ser	Lys	Arg	Ala	Ser	Gln	Tyr	His	Gln	Val	Glu	Ile	Pro	Pro
1				5					10					15	
Pro	Gln	Pro	Phe	Leu	Lys	Ser	Leu	Lys	Asn	Thr	Leu	Asn	Glu	Ile	Leu
			20					25					30		
Phe	Ala	Asp	Asp	Pro	Phe	Arg	Arg	Ile	Arg	Asn	Glu	Ser	Lys	Thr	Ser
		35					40					45			
Lys	Lys	Ile	Glu	Leu	Gly	Leu	Arg	His	Val	Phe	Pro	Ile	Leu	Glu	Trp
	50					55					60				
Ala	Arg	Gly	Tyr	Ser	Leu	Glu	Tyr	Leu	Lys	Ser	Asp	Val	Ile	Ser	Gly
65					70					75					80
Ile	Thr	Ile	Ala	Ser	Leu	Ala	Ile	Pro	Gln	Gly	Ile	Ser	Tyr	Ala	Gln
				85					90					95	
Leu	Ala	Asn	Leu	Pro	Pro	Ile	Leu	Gly	Leu	Tyr	Ser	Ser	Leu	Val	Pro

100					105					110					
Pro	Leu	Val	Tyr	Ala	Ile	Met	Gly	Ser	Ser	Arg	Asp	Leu	Ala	Val	Gly
		115					120					125			
Thr	Val	Ala	Val	Ala	Ser	Leu	Leu	Thr	Ala	Ala	Met	Leu	Gly	Lys	Glu
	130					135					140				
Val	Asn	Ala	Val	Val	Asn	Pro	Lys	Leu	Tyr	Leu	His	Leu	Ala	Phe	Thr
	145					150					155				160
Ala	Thr	Phe	Phe	Ala	Gly	Leu	Met	Gln	Thr	Cys	Leu	Gly	Leu	Leu	Arg
				165					170						175
Leu	Gly	Phe	Val	Val	Glu	Ile	Leu	Ser	His	Ala	Ala	Ile	Val	Gly	Phe
			180					185					190		
Met	Gly	Gly	Ala	Ala	Thr	Val	Val	Cys	Leu	Gln	Gln	Leu	Lys	Gly	Leu
		195					200					205			
Leu	Gly	Leu	His	His	Phe	Thr	His	Ser	Thr	Asp	Ile	Val	Thr	Val	Leu
	210					215					220				
Arg	Ser	Ile	Phe	Ser	Gln	Ser	His	Met	Trp	Arg	Trp	Glu	Ser	Gly	Val
	225					230					235				240
Leu	Gly	Cys	Cys	Phe	Leu	Ile	Phe	Leu	Leu	Thr	Thr	Lys	Tyr	Ile	Ser
				245					250					255	
Lys	Lys	Arg	Pro	Lys	Leu	Phe	Trp	Ile	Ser	Ala	Met	Ser	Pro	Leu	Val
			260					265					270		
Ser	Val	Ile	Phe	Gly	Thr	Ile	Phe	Leu	Tyr	Phe	Leu	His	Asp	Gln	Phe
		275					280					285			
His	Gly	Ile	Gln	Phe	Ile	Gly	Glu	Leu	Lys	Lys	Gly	Ile	Asn	Pro	Pro
	290					295					300				
Ser	Ile	Thr	His	Leu	Val	Phe	Thr	Pro	Pro	Tyr	Val	Met	Leu	Ala	Leu
	305					310					315				320
Lys	Val	Gly	Ile	Ile	Thr	Gly	Val	Ile	Ala	Leu	Ala	Glu	Gly	Ile	Ala
				325					330					335	
Val	Gly	Arg	Ser	Phe	Ala	Met	Tyr	Lys	Asn	Tyr	Asn	Ile	Asp	Gly	Asn
			340					345					350		
Lys	Glu	Met	Ile	Ala	Phe	Gly	Met	Met	Asn	Ile	Leu	Gly	Ser	Phe	Ser
		355					360					365			
Ser	Cys	Tyr	Leu	Thr	Thr	Gly	Pro	Phe	Ser	Arg	Ser	Ala	Val	Asn	Tyr
	370					375					380				
Asn	Ala	Gly	Cys	Lys	Thr	Ala	Leu	Ser	Asn	Val	Val	Met	Ala	Val	Ala
	385					390					395				400
Val	Ala	Val	Thr	Leu	Leu	Phe	Leu	Thr	Pro	Leu	Phe	Phe	Tyr	Thr	Pro
				405					410					415	
Leu	Val	Val	Leu	Ser	Ser	Ile	Ile	Ile	Ala	Ala	Met	Leu	Gly	Leu	Val

420					425					430					
Asp	Tyr	Glu	Ala	Ala	Ile	His	Leu	Trp	Lys	Leu	Asp	Lys	Phe	Asp	Phe
		435					440					445			
Phe	Val	Cys	Leu	Ser	Ala	Tyr	Leu	Gly	Val	Val	Phe	Gly	Thr	Ile	Glu
	450					455					460				
Ile	Gly	Leu	Ile	Leu	Ser	Val	Gly	Ile	Ser	Val	Met	Arg	Leu	Val	Leu
465					470					475					480
Phe	Val	Gly	Arg	Pro	Lys	Ile	Tyr	Val	Met	Gly	Asn	Ile	Gln	Asn	Ser
				485					490					495	
Glu	Ile	Tyr	Arg	Asn	Ile	Glu	His	Tyr	Pro	Gln	Ala	Ile	Thr	Arg	Ser
			500					505					510		
Ser	Leu	Leu	Ile	Leu	His	Ile	Asp	Gly	Pro	Ile	Tyr	Phe	Ala	Asn	Ser
	515						520					525			
Thr	Tyr	Leu	Arg	Asp	Arg	Ile	Gly	Arg	Trp	Ile	Asp	Glu	Glu	Glu	Asp
	530					535					540				
Lys	Leu	Arg	Thr	Ser	Gly	Asp	Ile	Ser	Leu	Gln	Tyr	Ile	Val	Leu	Asp
545					550					555					560
Met	Ser	Ala	Val	Gly	Asn	Ile	Asp	Thr	Ser	Gly	Ile	Ser	Met	Leu	Glu
				565					570					575	
Glu	Leu	Asn	Lys	Ile	Leu	Gly	Arg	Arg	Glu	Leu	Lys	Leu	Val	Ile	Ala
		580						585					590		
Asn	Pro	Gly	Ala	Glu	Val	Met	Lys	Lys	Leu	Ser	Lys	Ser	Thr	Phe	Ile
		595					600					605			
Glu	Ser	Ile	Gly	Lys	Glu	Arg	Ile	Tyr	Leu	Thr	Val	Ala	Glu	Ala	Val
	610					615					620				
Ala	Ala	Cys	Asp	Phe	Met	Leu	His	Thr	Ala	Lys	Pro	Asp	Ser	Pro	Val
625					630					635					640
Pro	Glu	Phe	Asn	Asn	Val										
				645											

<210> 29
 <211> 631
 <212> PRT
 <213> Arabidopsis thaliana

<400> 29															
Met	Glu	Val	His	Lys	Val	Val	Ala	Pro	Pro	His	Lys	Ser	Thr	Val	Ala
1				5					10					15	
Lys	Leu	Lys	Thr	Lys	Leu	Lys	Glu	Thr	Phe	Phe	Pro	Asp	Asp	Pro	Leu
			20					25					30		
Arg	Gln	Phe	Arg	Gly	Gln	Pro	Asn	Arg	Thr	Lys	Leu	Ile	Arg	Ala	Ala
		35					40					45			
Gln	Tyr	Ile	Phe	Pro	Ile	Leu	Gln	Trp	Cys	Pro	Glu	Tyr	Ser	Phe	Ser

50					55					60					
Leu 65	Leu	Lys	Ser	Asp	Val 70	Val	Ser	Gly	Leu	Thr 75	Ile	Ala	Ser	Leu	Ala 80
Ile	Pro	Gln	Gly	Ile 85	Ser	Tyr	Ala	Asn	Val 90	Ala	Asn	Leu	Pro	Pro	Ile 95
Val	Gly	Leu	Tyr 100	Ser	Ser	Phe	Val	Pro 105	Pro	Leu	Val	Tyr	Ala 110	Val	Leu
Gly	Ser	Ser	Arg	Asp	Leu	Ala	Val 120	Gly	Pro	Val	Ser	Ile 125	Ala	Ser	Leu
Ile 130	Leu	Gly	Ser	Met	Leu	Arg 135	Gln	Gln	Val	Ser	Pro 140	Val	Asp	Asp	Pro
Val 145	Leu	Phe	Leu	Gln	Leu	Ala 150	Phe	Ser	Ser	Thr 155	Phe	Phe	Ala	Gly	Leu 160
Phe	Gln	Ala	Ser	Leu 165	Gly	Ile	Leu	Arg	Leu 170	Gly	Phe	Ile	Ile	Asp 175	Phe
Leu	Ser	Lys	Ala 180	Thr	Leu	Ile	Gly	Phe 185	Met	Gly	Gly	Ala 190	Ala	Ile	Ile
Val	Ser	Leu 195	Gln	Gln	Leu	Lys	Gly 200	Leu	Leu	Gly	Ile	Thr 205	His	Phe	Thr
Lys 210	His	Met	Ser	Val	Val	Pro 215	Val	Leu	Ser	Ser	Val 220	Phe	Gln	His	Thr
Asn 225	Glu	Trp	Ser	Trp	Gln 230	Thr	Ile	Val	Met	Gly 235	Val	Cys	Phe	Leu	Leu 240
Phe	Leu	Leu	Ser	Thr 245	Arg	His	Leu	Ser	Met 250	Lys	Lys	Pro	Lys	Leu 255	Phe
Trp	Val	Ser	Ala 260	Gly	Ala	Pro	Leu	Leu 265	Ser	Val	Ile	Val 270	Ser	Thr	Leu
Leu	Val	Phe 275	Val	Phe	Arg	Ala	Glu 280	Arg	His	Gly	Ile 285	Ser	Val	Ile	Gly
Lys 290	Leu	Pro	Glu	Gly	Leu	Asn 295	Pro	Pro	Ser	Trp	Asn 300	Met	Leu	Gln	Phe
His 305	Gly	Ser	His	Leu	Ala 310	Leu	Val	Ala	Lys	Thr 315	Gly	Leu	Val	Thr	Gly 320
Ile	Val	Ser	Leu	Thr 325	Glu	Gly	Ile	Ala	Val 330	Gly	Arg	Thr	Phe	Ala 335	Ala
Leu	Lys	Asn	Tyr 340	His	Val	Asp	Gly	Asn 345	Lys	Glu	Met	Ile 350	Ala	Ile	Gly
Leu	Met	Asn 355	Val	Val	Gly	Ser	Ala 360	Thr	Ser	Cys	Tyr	Val 365	Thr	Thr	Gly
Ala	Phe	Ser	Arg	Ser	Ala	Val	Asn	Asn	Asn	Ala	Gly	Ala	Lys	Thr	Ala

370					375					380					
Val	Ser	Asn	Ile	Val	Met	Ser	Val	Thr	Val	Met	Val	Thr	Leu	Leu	Phe
385					390					395					400
Leu	Met	Pro	Leu	Phe	Glu	Tyr	Thr	Pro	Asn	Val	Val	Leu	Gly	Ala	Ile
				405					410					415	
Ile	Val	Thr	Ala	Val	Ile	Gly	Leu	Ile	Asp	Leu	Pro	Ala	Ala	Cys	His
			420					425					430		
Ile	Trp	Lys	Ile	Asp	Lys	Phe	Asp	Phe	Leu	Val	Met	Leu	Cys	Ala	Phe
		435					440					445			
Phe	Gly	Val	Ile	Phe	Leu	Ser	Val	Gln	Asn	Gly	Leu	Ala	Ile	Ala	Val
	450					455					460				
Gly	Leu	Ser	Leu	Phe	Lys	Ile	Leu	Met	Gln	Val	Thr	Arg	Pro	Lys	Met
465				470						475					480
Val	Ile	Met	Gly	Asn	Ile	Pro	Gly	Thr	Asp	Ile	Tyr	Arg	Asp	Leu	His
				485					490					495	
His	Tyr	Lys	Glu	Ala	Gln	Arg	Ile	Pro	Gly	Phe	Leu	Val	Leu	Ser	Ile
			500					505					510		
Glu	Ser	Pro	Val	Asn	Phe	Ala	Asn	Ser	Asn	Tyr	Leu	Thr	Glu	Arg	Thr
		515					520					525			
Ser	Arg	Trp	Ile	Glu	Glu	Cys	Glu	Glu	Glu	Glu	Ala	Gln	Glu	Lys	His
	530					535					540				
Ser	Ser	Leu	Gln	Phe	Leu	Ile	Leu	Glu	Met	Ser	Ala	Val	Ser	Gly	Val
545				550					555						560
Asp	Thr	Asn	Gly	Val	Ser	Phe	Phe	Lys	Glu	Leu	Lys	Lys	Thr	Thr	Ala
				565					570					575	
Lys	Lys	Asp	Ile	Glu	Leu	Val	Phe	Val	Asn	Pro	Leu	Ser	Glu	Val	Val
			580					585					590		
Glu	Lys	Leu	Gln	Arg	Ala	Asp	Glu	Gln	Lys	Glu	Phe	Met	Arg	Pro	Glu
		595					600					605			
Phe	Leu	Phe	Leu	Thr	Val	Ala	Glu	Ala	Val	Ala	Ser	Leu	Ser	Leu	Lys
	610					615					620				
Gly	Pro	Ser	Leu	Ser	Asn	Val									
625				630											
<210> 30															
<211> 660															
<212> PRT															
<213> Hordeum vulgare															
<400> 30															
Met	Pro	Arg	Thr	Val	Ser	Asp	Gly	Gly	Glu	Asp	Phe	Asp	Gly	Asp	Val
1				5					10					15	
Cys Ser Gln Thr Ala Ser Gln Arg His Thr Asp Ser Thr His His His															

20					25					30					
His	Gly	Tyr	Lys	Val	Gly	Phe	Pro	Pro	Ala	Lys	Gly	Val	Phe	Ala	Glu
		35					40					45			
Phe	Ala	Glu	Gly	Val	Lys	Glu	Thr	Phe	Phe	Ala	Asp	Asp	Pro	Leu	Arg
	50					55					60				
Glu	Tyr	Lys	Asp	Gln	Pro	Arg	Ser	Lys	Lys	Leu	Trp	Leu	Ser	Leu	Val
	65					70					75				80
His	Leu	Phe	Pro	Val	Leu	Asp	Trp	Ser	Arg	Ser	Tyr	Thr	Phe	Gly	Lys
				85					90					95	
Phe	Lys	Gly	Asp	Leu	Val	Ala	Gly	Leu	Thr	Ile	Ala	Ser	Leu	Cys	Ile
			100					105					110		
Pro	Gln	Asp	Ile	Gly	Tyr	Ala	Lys	Leu	Ala	Asn	Leu	Gln	Pro	His	Val
		115					120					125			
Gly	Leu	Tyr	Ser	Ser	Phe	Val	Pro	Pro	Leu	Ile	Tyr	Ala	Leu	Met	Gly
	130					135					140				
Ser	Ser	Arg	Asp	Ile	Ala	Ile	Gly	Pro	Val	Ala	Val	Val	Ser	Leu	Leu
	145					150					155				160
Leu	Gly	Thr	Leu	Leu	Gln	Glu	Glu	Ile	Asp	Pro	Val	Lys	Asn	Pro	Leu
				165					170					175	
Glu	Tyr	Ser	Arg	Leu	Ala	Phe	Thr	Ala	Thr	Phe	Phe	Ala	Gly	Ile	Thr
			180					185					190		
Gln	Ala	Met	Leu	Gly	Phe	Phe	Arg	Leu	Gly	Phe	Ile	Ile	Glu	Phe	Leu
		195					200					205			
Ser	His	Ala	Ala	Ile	Val	Gly	Phe	Met	Ala	Gly	Ala	Ala	Ile	Thr	Ile
	210					215					220				
Ala	Leu	Gln	Gln	Leu	Lys	Gly	Leu	Leu	Gly	Ile	Ala	Lys	Phe	Thr	Lys
	225					230					235				240
Lys	Ser	Asp	Ile	Ile	Ser	Val	Met	Glu	Ser	Val	Trp	Gly	Asn	Val	Gln
				245					250					255	
His	Gly	Trp	Asn	Trp	Gln	Thr	Ile	Leu	Ile	Gly	Ser	Ser	Phe	Leu	Ala
			260					265					270		
Phe	Leu	Leu	Thr	Thr	Lys	Tyr	Ile	Ala	Lys	Lys	Asn	Lys	Lys	Leu	Phe
			275				280					285			
Trp	Val	Ser	Ala	Ile	Ala	Pro	Leu	Ile	Ser	Val	Val	Ile	Ser	Thr	Phe
	290					295					300				
Cys	Val	Tyr	Ile	Thr	Arg	Ala	Asp	Lys	Gln	Gly	Val	Ala	Ile	Val	Lys
	305					310					315				320
Asn	Ile	Lys	Gln	Gly	Ile	Asn	Pro	Pro	Ser	Phe	Asp	Leu	Ile	Tyr	Trp
				325					330					335	
Ser	Gly	Pro	Tyr	Leu	Ala	Lys	Gly	Phe	Arg	Ile	Gly	Val	Val	Ser	Gly

340					345					350					
Met	Val	Ala	Leu	Thr	Glu	Ala	Ile	Ala	Ile	Gly	Arg	Thr	Phe	Ala	Ala
		355					360					365			
Met	Lys	Asp	Tyr	Gln	Ile	Asp	Gly	Asn	Lys	Glu	Met	Val	Ala	Leu	Gly
	370					375					380				
Thr	Met	Asn	Ile	Val	Gly	Ser	Met	Thr	Ser	Cys	Tyr	Val	Ala	Thr	Gly
385					390					395					400
Ser	Phe	Ser	Arg	Ser	Ala	Val	Asn	Tyr	Met	Ala	Gly	Cys	Lys	Thr	Ala
				405					410					415	
Val	Ser	Asn	Val	Val	Met	Ala	Ile	Val	Val	Met	Leu	Thr	Leu	Leu	Leu
			420					425					430		
Ile	Thr	Pro	Leu	Phe	Lys	Tyr	Thr	Pro	Asn	Ala	Ile	Leu	Ala	Ser	Ile
		435					440					445			
Ile	Ile	Asn	Ala	Val	Val	Asn	Leu	Val	Asp	Tyr	Glu	Thr	Ala	Tyr	Leu
	450					455					460				
Ile	Trp	Lys	Val	Asp	Lys	Met	Asp	Phe	Val	Ala	Leu	Leu	Gly	Ala	Phe
465					470					475					480
Phe	Gly	Val	Val	Phe	Ala	Ser	Val	Glu	Tyr	Gly	Leu	Leu	Ile	Ala	Val
				485				490						495	
Ala	Ile	Ser	Leu	Gly	Lys	Ile	Leu	Leu	Gln	Val	Thr	Arg	Pro	Arg	Thr
			500				505						510		
Ala	Leu	Leu	Gly	Asn	Leu	Pro	Arg	Thr	Thr	Ile	Tyr	Arg	Asn	Val	Glu
		515					520					525			
Gln	Tyr	Pro	Glu	Ala	Thr	Lys	Val	Pro	Gly	Val	Met	Ile	Val	Arg	Val
	530					535					540				
Asp	Ser	Ala	Ile	Tyr	Phe	Thr	Asn	Ser	Asn	Tyr	Val	Lys	Glu	Arg	Ile
545					550					555					560
Leu	Arg	Trp	Leu	Arg	Asp	Glu	Glu	Glu	Gln	Gln	Gln	Glu	Gln	Lys	Leu
			565				570							575	
Ser	Lys	Thr	Glu	Phe	Leu	Ile	Val	Glu	Leu	Ser	Pro	Val	Thr	Asp	Ile
			580					585					590		
Asp	Thr	Ser	Gly	Ile	His	Ala	Leu	Glu	Glu	Leu	Leu	Lys	Ala	Leu	Glu
		595					600					605			
Lys	Arg	Lys	Ile	Gln	Leu	Ile	Leu	Ala	Asn	Pro	Gly	Pro	Ala	Val	Ile
	610					615					620				
Gln	Lys	Leu	Arg	Ser	Ala	Lys	Phe	Thr	Asp	Leu	Ile	Gly	Asp	Asp	Lys
625					630					635					640
Ile	Phe	Leu	Ser	Val	Gly	Asp	Ala	Val	Lys	Lys	Phe	Ala	Pro	Lys	Ser
				645					650					655	
Ser	Leu	Asn	Val												

<210> 31
 <211> 685
 <212> PRT
 <213> Arabidopsis thaliana

<400> 31
 Met Ser Tyr Ala Ser Leu Ser Val Lys Asp Leu Thr Ser Leu Val Ser
 1 5 10 15
 Arg Ser Gly Thr Gly Ser Ser Ser Ser Leu Lys Pro Pro Gly Gln Thr
 20 25 30
 Arg Pro Val Lys Val Ile Pro Leu Gln His Pro Asp Thr Ser Asn Glu
 35 40 45
 Ala Arg Pro Pro Ser Ile Pro Phe Asp Asp Ile Phe Ser Gly Trp Thr
 50 55 60
 Ala Lys Ile Lys Arg Met Arg Leu Val Asp Trp Ile Asp Thr Leu Phe
 65 70 75 80
 Pro Cys Phe Arg Trp Ile Arg Thr Tyr Arg Trp Ser Glu Tyr Phe Lys
 85 90 95
 Leu Asp Leu Met Ala Gly Ile Thr Val Gly Ile Met Leu Val Pro Gln
 100 105 110
 Ala Met Ser Tyr Ala Lys Leu Ala Gly Leu Pro Pro Ile Tyr Gly Leu
 115 120 125
 Tyr Ser Ser Phe Val Pro Val Phe Val Tyr Ala Ile Phe Gly Ser Ser
 130 135 140
 Arg Gln Leu Ala Ile Gly Pro Val Ala Leu Val Ser Leu Leu Val Ser
 145 150 155 160
 Asn Ala Leu Gly Gly Ile Ala Asp Thr Asn Glu Glu Leu His Ile Glu
 165 170 175
 Leu Ala Ile Leu Leu Ala Leu Leu Val Gly Ile Leu Glu Cys Ile Met
 180 185 190
 Gly Leu Leu Arg Leu Gly Trp Leu Ile Arg Phe Ile Ser His Ser Val
 195 200 205
 Ile Ser Gly Phe Thr Ser Ala Ser Ala Ile Val Ile Gly Leu Ser Gln
 210 215 220
 Ile Lys Tyr Phe Leu Gly Tyr Ser Ile Ala Arg Ser Ser Lys Ile Val
 225 230 235 240
 Pro Ile Val Glu Ser Ile Ile Ala Gly Ala Asp Lys Phe Gln Trp Pro
 245 250 255
 Pro Phe Val Met Gly Ser Leu Ile Leu Val Ile Leu Gln Val Met Lys
 260 265 270
 His Val Gly Lys Ala Lys Lys Glu Leu Gln Phe Leu Arg Ala Ala Ala

275					280					285					
Pro	Leu	Thr	Gly	Ile	Val	Leu	Gly	Thr	Thr	Ile	Ala	Lys	Val	Phe	His
290						295					300				
Pro	Pro	Ser	Ile	Ser	Leu	Val	Gly	Glu	Ile	Pro	Gln	Gly	Leu	Pro	Thr
305					310					315					320
Phe	Ser	Phe	Pro	Arg	Ser	Phe	Asp	His	Ala	Lys	Thr	Leu	Leu	Pro	Thr
				325					330					335	
Ser	Ala	Leu	Ile	Thr	Gly	Val	Pro	Ile	Leu	Glu	Ser	Val	Gly	Ile	Ala
			340					345					350		
Lys	Ala	Leu	Ala	Ala	Lys	Asn	Arg	Tyr	Glu	Leu	Asp	Ser	Asn	Ser	Asp
		355					360					365			
Leu	Phe	Gly	Leu	Gly	Val	Ala	Asn	Ile	Leu	Gly	Ser	Leu	Phe	Ser	Ala
		370				375					380				
Tyr	Pro	Ala	Thr	Gly	Ser	Phe	Ser	Arg	Ser	Ala	Val	Asn	Asn	Glu	Ser
385					390					395					400
Glu	Ala	Lys	Thr	Gly	Leu	Ser	Gly	Leu	Ile	Thr	Gly	Ile	Ile	Ile	Gly
				405					410					415	
Cys	Ser	Leu	Leu	Phe	Leu	Thr	Pro	Met	Phe	Lys	Tyr	Ile	Pro	Gln	Cys
			420					425					430		
Ala	Leu	Ala	Ala	Ile	Val	Ile	Ser	Ala	Val	Ser	Gly	Leu	Val	Asp	Tyr
		435					440					445			
Asp	Glu	Ala	Ile	Phe	Leu	Trp	Arg	Val	Asp	Lys	Arg	Asp	Phe	Ser	Leu
	450					455					460				
Trp	Thr	Ile	Thr	Ser	Thr	Ile	Thr	Leu	Phe	Phe	Gly	Ile	Glu	Ile	Gly
465					470					475					480
Val	Leu	Val	Gly	Val	Gly	Phe	Ser	Leu	Ala	Phe	Val	Ile	His	Glu	Ser
				485					490					495	
Ala	Asn	Pro	His	Ile	Ala	Val	Leu	Gly	Arg	Leu	Pro	Gly	Thr	Thr	Val
			500					505					510		
Tyr	Arg	Asn	Ile	Lys	Gln	Tyr	Pro	Glu	Ala	Tyr	Thr	Tyr	Asn	Gly	Ile
		515					520					525			
Val	Ile	Val	Arg	Ile	Asp	Ser	Pro	Ile	Tyr	Phe	Ala	Asn	Ile	Ser	Tyr
	530					535					540				
Ile	Lys	Asp	Arg	Leu	Arg	Glu	Tyr	Glu	Val	Ala	Val	Asp	Lys	Tyr	Thr
545						550					555				560
Asn	Arg	Gly	Leu	Glu	Val	Asp	Arg	Ile	Asn	Phe	Val	Ile	Leu	Glu	Met
				565					570					575	
Ser	Pro	Val	Thr	His	Ile	Asp	Ser	Ser	Ala	Val	Glu	Ala	Leu	Lys	Glu
			580					585					590		
Leu	Tyr	Gln	Glu	Tyr	Lys	Thr	Arg	Asp	Ile	Gln	Leu	Ala	Ile	Ser	Asn

595					600					605					
Pro	Asn	Lys	Asp	Val	His	Leu	Thr	Ile	Ala	Arg	Ser	Gly	Met	Val	Glu
610					615					620					
Leu	Val	Gly	Lys	Glu	Trp	Phe	Phe	Val	Arg	Val	His	Asp	Ala	Val	Gln
625					630					635					
Val	Cys	Leu	Gln	Tyr	Val	Gln	Ser	Ser	Asn	Leu	Glu	Asp	Lys	His	Leu
645					650					655					
Ser	Phe	Thr	Arg	Arg	Tyr	Gly	Gly	Ser	Asn	Asn	Asn	Ser	Ser	Ser	Ser
660					665					670					
Asn	Ala	Leu	Leu	Lys	Glu	Pro	Leu	Leu	Ser	Val	Glu	Lys			
675					680					685					